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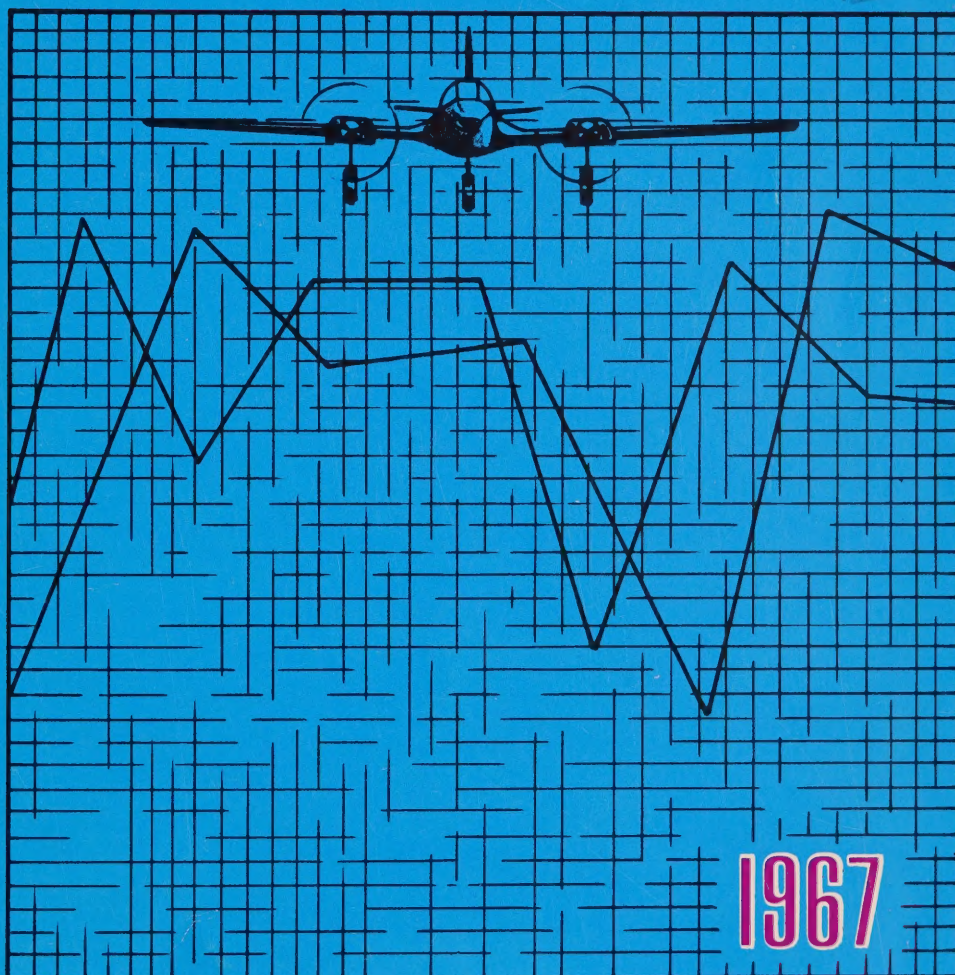
A31

*Canada. Transport dept.*

# ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT

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1967





**ACCIDENTS  
TO  
CANADIAN  
REGISTERED  
AIRCRAFT**

**DEPARTMENT OF TRANSPORT**

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THE QUEEN'S PRINTER  
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This Accident Survey is entirely different in concept and format from past issues. The brief summary for each accident has been deleted because it was merely repetition of other reports which have been published. No reference is made to cause factors; these will be discussed at length in a later publication.

The intent of these changes is to provide purely statistical information for the use of persons and organizations having a direct interest in Canadian aviation. Operators for instance, will be able to judge their accident record against the record of all similar operators. Also, they will be able to see the extent to which that group of operators contributes to the total aircraft accident picture.

Readers will note the inclusion of accident rates derived by relating numbers of accidents to some measure of aircraft activity. It has not been possible to use the same aircraft activity throughout, simply because all the necessary data is not available for all types of operation. Enough rate information is provided, however, to give an accurate impression of the accident trend for each type of activity.

Efforts will continue to provide more meaningful information. Changes will be made in response to suggestions and recommendations of the users of the report. Hopefully, in the meantime, the report will stimulate interest and give aircraft operators some indication of the relative safety of their operations.

DEFINITIONS	Relating to this publication		IRREGULAR	serving a defined area or point(s) from a designated base
ACCIDENT	an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, in which:		POSITIONING	a non-revenue flight for operational reasons
	any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or		REGULAR	serving designated points regularly in sequence
	the aircraft receives substantial damage or is destroyed		ROTORCRAFT	a heavier-than-air aircraft which derives lift from rotating aerodynamic surfaces
			SCHEDULED	serving designated points on a schedule
AEROPLANE	a power-driven heavier-than-air aircraft deriving its lift in flight from aerodynamic reactions on surfaces which remain fixed under given conditions of flight		SERIOUS	an injury requiring treatment, and results in suspension of normal activity for five or more days and includes
AIRCRAFT	any machine that can derive support in the atmosphere from reaction of the air			unconsciousness
				bone — fracture except simple fracture of finger or toe
CARRIER	one authorized to operate aircraft in or over Canada for hire or reward			lacerations of muscles or those which cause severe hemorrhage
CHARTER	the hire of an aircraft at a toll per mile or per hour			injury to an internal organ
GROUP	subdivision of charter carriers by aircraft weight as follows			second or third degree burns or burns on more than 5% of the body
	Fixed Wing	Rotary Wing	SPECIALTY FLYING SERVICES	flying services such as flying training, recreational flying, aerial photography and aerial inspection
	A in excess of 18000 lb	in excess of 18000 lb		
	B 2501 to 18000 lb	3501 to 18000 lb	UNIT TOLL TRANSPORTATION	public transportation of passengers and goods at a toll per unit
	C not over 2500 lb	not over 3500 lb		



The data contained in this publication is presented mainly in graphic form. Explanatory text is provided at appropriate points. Two tables, which correspond with tables in previous issues are included and preserve continuity. Almost all other material provides figures not only of the current year but also of the four previous years, thus giving a background against which the current year can be viewed.

Although the report provides the facility for comparison between operations of different types, such comparisons should be made with restraint. Because of the wide disparity in the level of hazard inherent in the various operations, comparisons are not often meaningful. For instance one hour of flying in crop-dusting operations entails much more risk than one hour of cruising flight at altitude in a multi-engined aircraft. Thus with accident rates based on flying hours, crop-dusting may appear disproportionately high, leading one to believe unjustifiably that the operations are not being properly conducted. To resolve this doubt it may also be necessary to view the accident rates for the two types of operations by accidents per unit of departure, or other measure of aircraft activity. This is not to suggest that comparisons should not be made but to illustrate the need to

understand the limited value of any comparison. The comparison which embraces the fewest anomalies is that in which a type of operation is compared against itself for the previous year or succession of years.

Methods of viewing accident records, other than those already mentioned, have been used in this book. The reader can see that each method gives a slightly different picture of aircraft accidents. Having viewed all the charts for a particular type of operation the reader should be left with an accurate impression of the relative safety of any given operation.

The chief advantage of this new format is the convenience it provides for the reader. Previously, only the raw data was provided and the reader was left to reduce it to meaningful terms. This book provides direct-reading data and the facility of seeing the accident picture almost at a glance.

The aircraft activity data for this publication was provided by the Aviation Statistics Center, Dominion Bureau of Statistics, the Air Transport Committee, Canadian Transportation Commission, and the Civil Aviation Branch, Department of Transport.



## **PART I**

On Charts I and II the accident picture for 1967 is given in terms of who had the accidents and who suffered the casualties. For convenience, individual figures are given for fixed wing and rotary wing aircraft.



Chart 1

A	accidents
FA	fatal accidents
K	killed

S serious injury  
F fixed wing  
R rotary wing

	TOTAL A		FA		CREW																					
					PILOT				CO-PILOT				FLIGHT ENG.				CABIN ATTEN.				STUD. PILOT				OTHER	
					K	S	F	R	K	S	F	R	K	S	F	R	K	S	F	R	K	S				
	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R						
Domestic – Scheduled																										
Domestic – Unscheduled																										
Regular Specific P.																										
Irregular Specific P.	7		3		2																					
Charter – Group A	2		1		1			1																		
Charter – Group B	53	1	10		8	1																				
Charter – Group C	13	31	3	4	3	3	1	7																		
International – Unscheduled																										
Flying Club																										
Flying Training	28		3		3		5		1																	
Recreational Flying	9		1		1		1																			
Specialty																										
Flying Training	32	3	4		3	3		2			1															
Recreational Flying	21	1	4		4																					
Aerial Photography																										
AP and Survey	4	5																								
AA and Distribution	4					1																				
AIR and Advertising	1	8																								
Aerial Control	4	2	3		3			1																		
Aerial Construction																										
AA and Mercy Service																										
Other																										
Private																										
Ferry	4																									
Company Business	24	1	5		4		1																			
Test	7	1	1		1																					
Training – Check	14				1																					
Recreational Flying	174	2	36	1	34	1	15																			
Aerial Pest Control	3						1																			
Other	1																									
Miscellaneous																										
Positioning		1																								
Ferry	3			1		1																				
State	3	4	3	1	3	1		1																		
Contract		1																								
TOTALS	411	61	76	8	70	7	29	7	5		1	1														

Chart 2

A accidents  
FA fatal accidents  
K killed

S serious injury  
F fixed wing  
R rotary wing

	TOTAL A		FA		PASSENGERS				THIRD PARTY				TOTAL CREW				GRAND TOTALS				ALL	
					K		S		K		S		K		S		K		S		K	S
	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R		
Domestic – Scheduled																						
Domestic – Unscheduled																						
Regular Specific Point	7		3						1				2				3				3	
Irregular Specific P.	2		1		2								2				4				4	
Charter – Group A	53	1	10		13		7						8	1			21		8		21	8
Charter – Group B	13	31	3		2		1	9					3	3	1		5	6	2	16	11	18
Charter – Group C																						
International – Unscheduled																						
Flying Club																						
Flying Training	28		3		4		1						3		6		7		7		7	7
Recreational Flying	9		1		1		2						1		1		2		3		2	3
Specialty																						
Flying Training	32	3	4		2								6		3		8		3		8	3
Recreational Flying	21	1	4		5		2						4				9		2		9	2
Aerial Photography																						
AP and Survey	4	5																				
AA and Distribution	4													1				1			1	
AIR and Advertising	1	8																				
Aerial Control	4	2	3				1						4				4		1		4	1
Aerial Construction																						
AA and Mercy Service																						
Other																						
Private																						
Ferry	4																					
Company Business	24	1	5		3		1						5				8		1		8	1
Test	7	1		1										1		1		1		1	1	1
Training – Check	14						1						1				1		1		1	1
Recreational Flying	174	2	36	1	37		12			1			34	1	15	1	71	1	28		72	28
Aerial Pest Control	3														1				1			1
Other	1																					
Miscellaneous																						
Positioning		1																				
Ferry	3			1		1		1						1			2		1		2	1
State	3	4	3	1			1						3	1	1		3	1	2		4	2
Contract		1																				
TOTALS	411	61	76	8	69	4	29	10	1		1		76	7	30	8	146	11	60	18	157	78





## PART 2

### OVERALL TRENDS

In this Section are shown in graph form only those figures which apply to Canadian Aviation as a whole and that give a measure of the activity, growth and accident record of aviation during the past five years.

The numbers of aircraft, pilot licences in force and hours flown are depicted for a five year period. The figures shown on the charts are valid at the end of December each year. A very substantial increase attests to the vigorous growth of Canadian aviation during that period. For example, in 1967 the number of aircraft on the Registry increased by 10.2 % from the previous year and the total number of pilot licences in force by 14.6%.

Charts 7, 8 and 9 give the relationship between numbers of hours flown, accidents and the accident rates per 10,000 hours. The accident rate has varied little during this period and after the increase of 1965 has shown a tendency to level off again, although at a slightly higher level.

In 1967 the number of fatal accidents (Chart 10) increased by 31.2% compared to an 11.8% increase in the total number of accidents. The number of casualties is slightly lower (Chart 12) and is due only to the fact that no major accident has occurred during the year. A total of 60 and 64 persons respectively died in one major accident each for the year 1965 and 1966. The difference after subtracting the major accident casualties from the previous years represents a very substantial increase for 1967.

## AIRCRAFT POPULATION

Chart 3

### TOTAL ON REGISTER

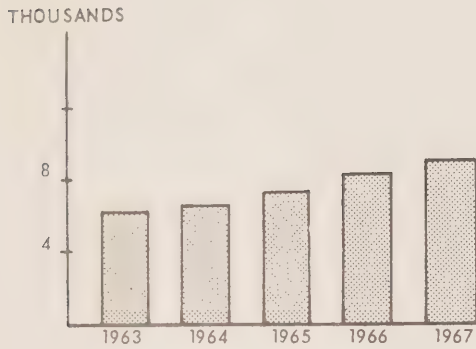
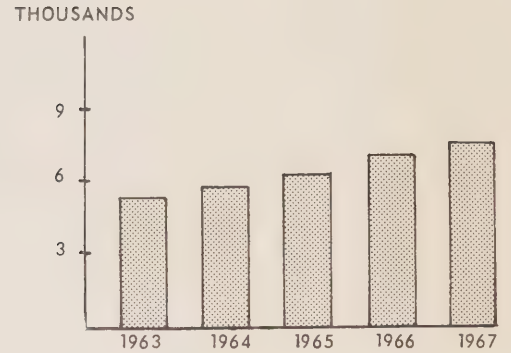


Chart 4

### WITH VALID C OF A



## PILOT POPULATION

Chart 5

### TOTAL LICENCES

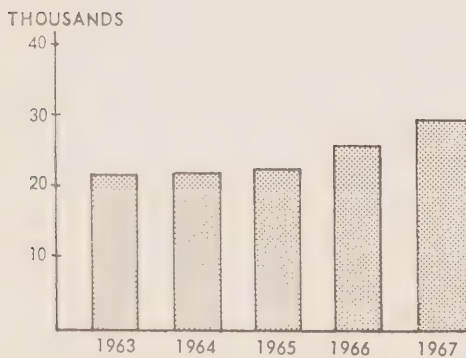
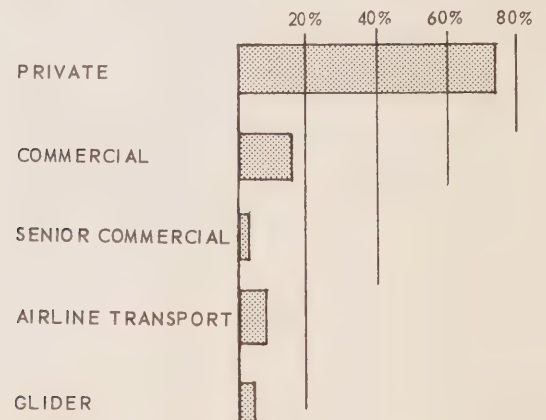


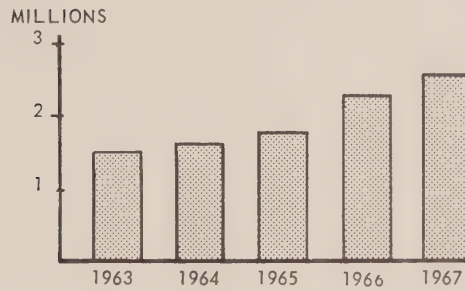
Chart 6

### LICENCES BY PERCENTAGE OF TOTAL FOR 1967



## AIRCRAFT ACTIVITY

Chart 7  
HOURS FLOWN BY CANADIAN AIRCRAFT



## ACCIDENT DATA

Chart 8  
NUMBER OF ACCIDENTS

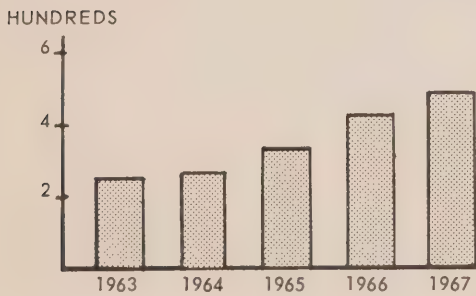


Chart 9  
ACCIDENT RATE  
PER 10,000 HOURS

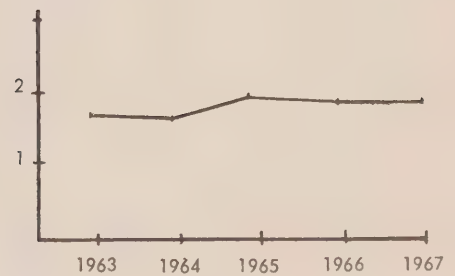




Chart 10

### FATAL ACCIDENTS

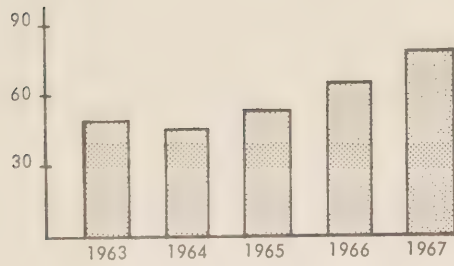


Chart 11

### FATAL ACCIDENT RATE PER 10,000 HOURS

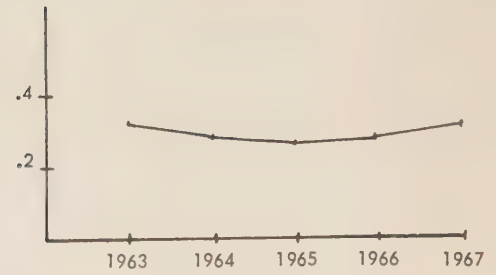


Chart 12

### CASUALTIES

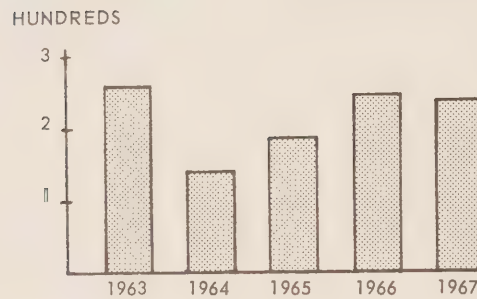


Chart 13

### FATALITIES

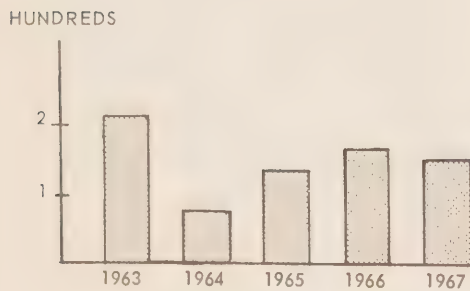
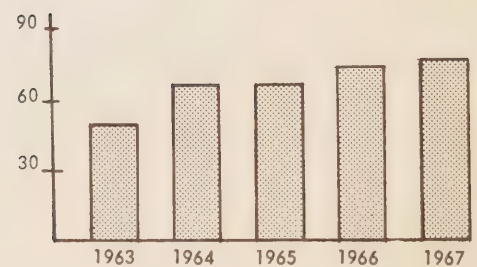


Chart 14

### SERIOUS INJURIES



## PROPORTIONS OF OVERALL TOTALS

Charts 15 to 22 depict for each class of operation their share in percentage of the total amount of hours flown by Canadian aircraft operators and their share of the total number of accidents incurred by all. For example in Chart 15 for the year 1963, Scheduled Services performed 18.24% of the flying

hours while incurring only 1.15% of the accidents.

Chart 23 graphically illustrates for a five year period the proportions of hours versus accidents for each class of operator.

Chart 15

### SCHEDULED SERVICES

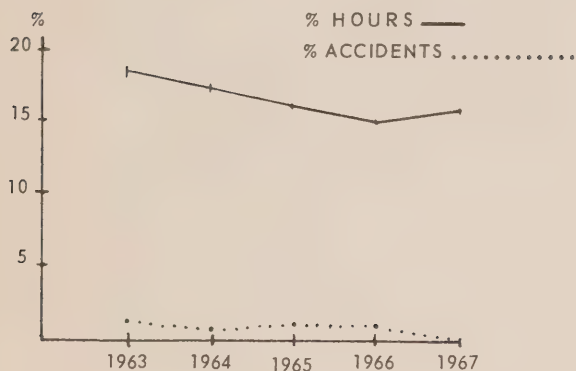


Chart 16

### NON-SCHEDULED SERVICES

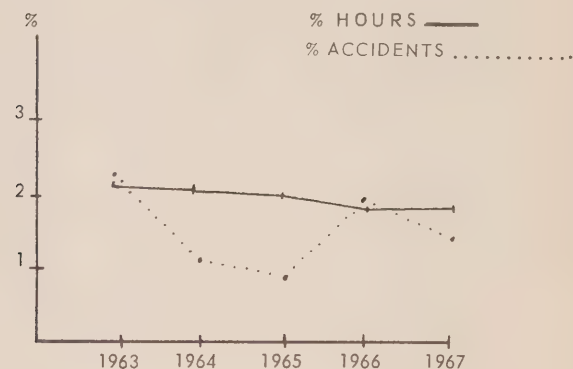


Chart 17

### CHARTER SERVICES

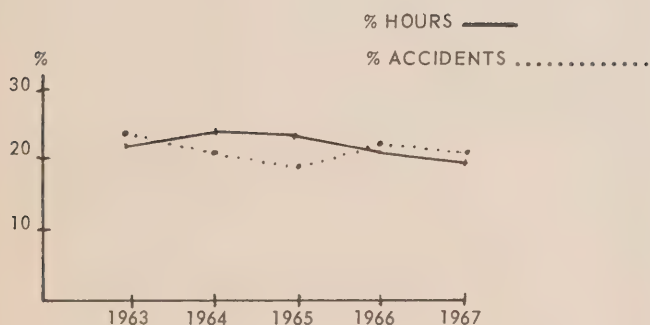


Chart 18

### SPECIALTY RF AND FT

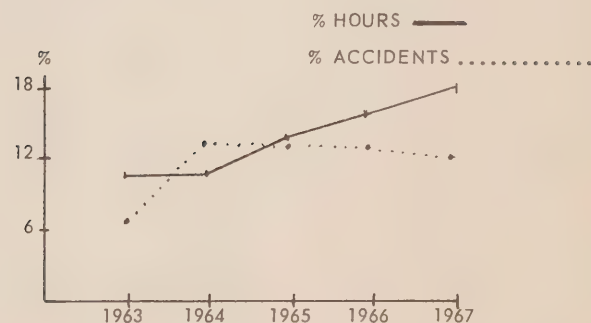


Chart 19

SPECIALTY, OTHERS

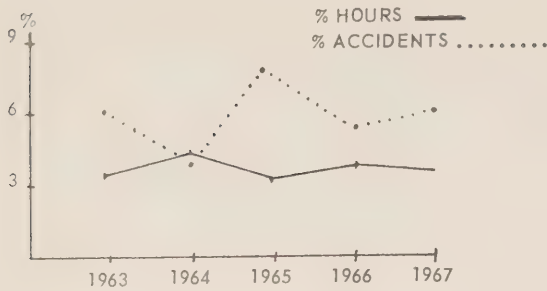


Chart 20

FLYING CLUBS

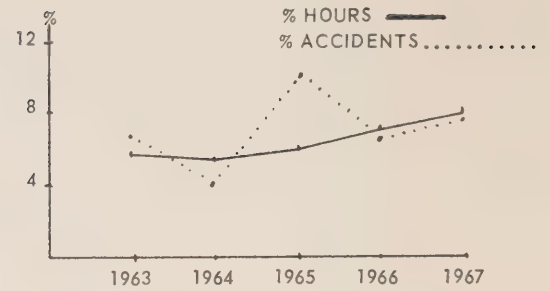


Chart 21

PRIVATE AIRCRAFT

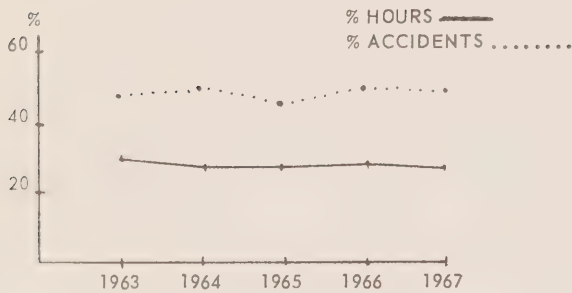


Chart 22

STATE AIRCRAFT

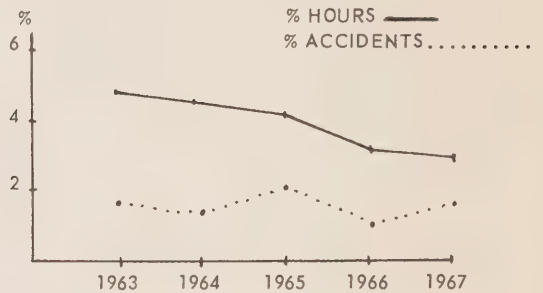
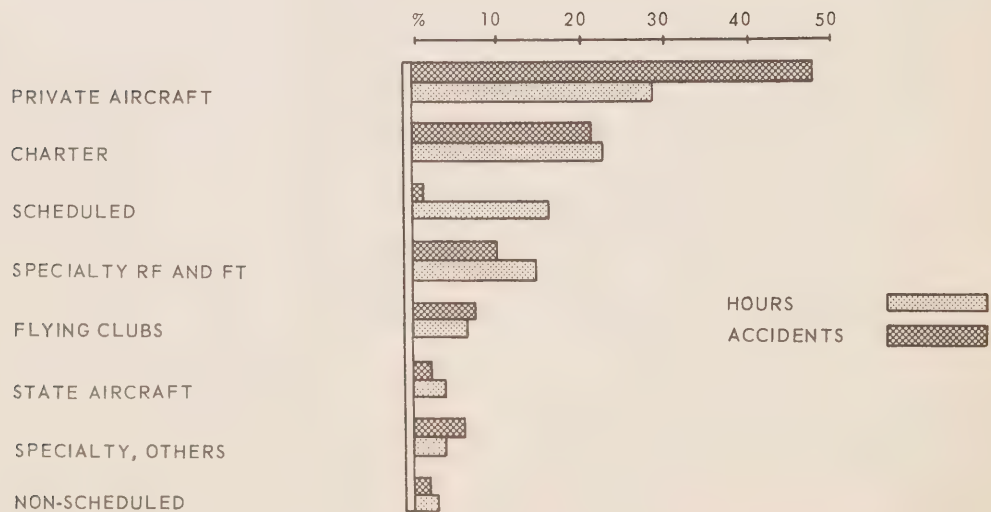


Chart 23

5 YEAR AVERAGE





### **PART 3**

#### **TRENDS BY CLASS OF OPERATORS**

All Canadian aircraft are registered according to their purpose of use which may be commercial, private or state. Commercial aircraft account for approximately 70% of the hours flown while private and state account for the balance.

Every class of operator will be examined in the light of the information available for each. Detailed data such as stage flights, passenger miles and aircraft miles is available for some operations while only the number of hours flown is available for others.

## COMMERCIAL OPERATIONS

Chart 24

COMMERCIAL AIRCRAFT WITH  
VALID C OF A

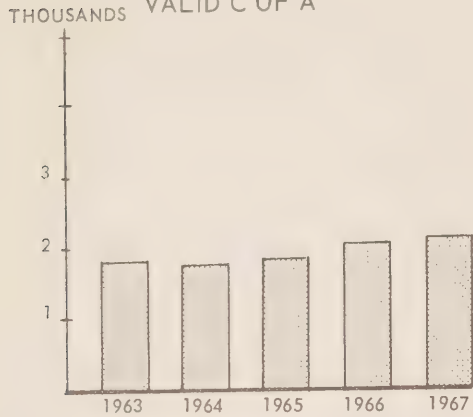


Chart 25

COMMERCIAL PILOTS

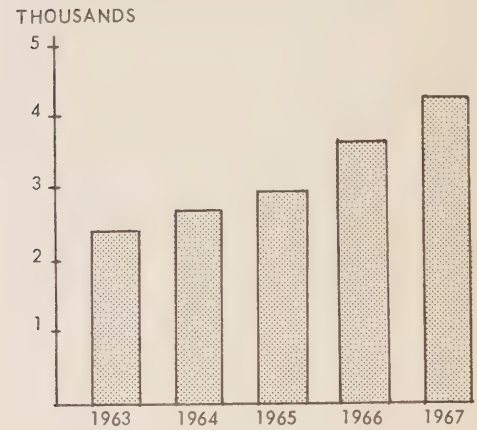


Chart 26

SENIOR COMMERCIAL PILOTS

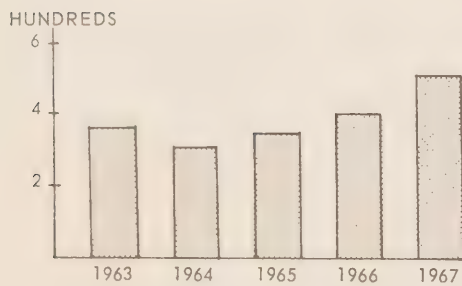
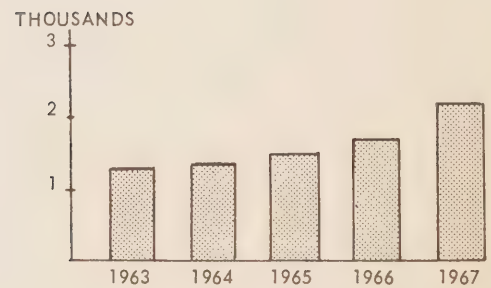


Chart 27

AIRLINE TRANSPORT PILOTS



## SCHEDULED

Scheduled domestic and international operations are treated in charts 28 to 47 and 48 to 68 respectively. Relatively few accidents occur in these two classes of operations, therefore, the influence of one accident is felt to a greater degree as evidenced by the movement of the rates from year to year.

## DOMESTIC

Chart 28

### REVENUE HOURS FLOWN

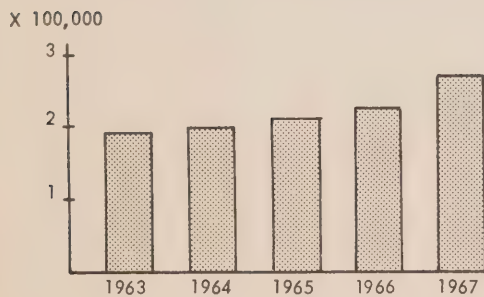


Chart 29

### STAGE FLIGHTS

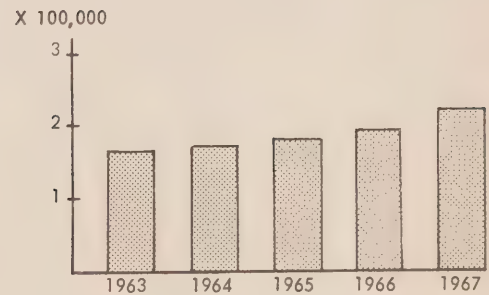


Chart 30

### AIRCRAFT MILES

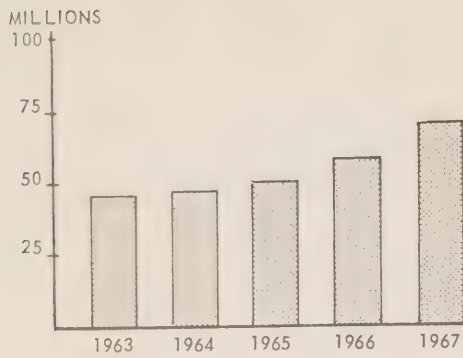


Chart 31

### REVENUE PASSENGERS CARRIED

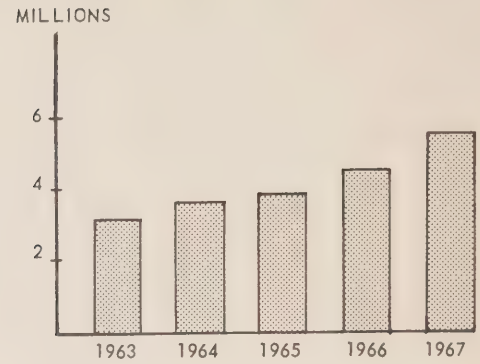


Chart 32

### REVENUE PASSENGER MILES

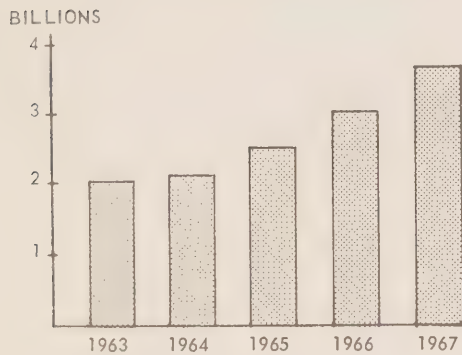


Chart 33

### ACCIDENT RATE

PER 10,000 HOURS



Chart 34

### FATAL ACCIDENT RATE

PER 10,000 HOURS

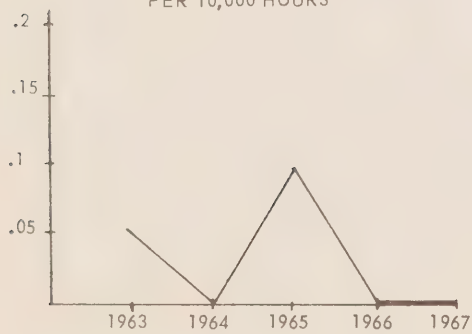


Chart 35

### PASSENGERS KILLED

PER 10,000 HOURS





Chart 36

ACCIDENTS PER 10,000  
STAGE FLIGHTS



Chart 37

FATAL ACCIDENTS PER 10,000  
STAGE FLIGHTS



Chart 38

PASSENGERS KILLED PER 10,000  
STAGE FLIGHTS



Chart 39

ACCIDENTS PER MILLION  
AIRCRAFT MILES

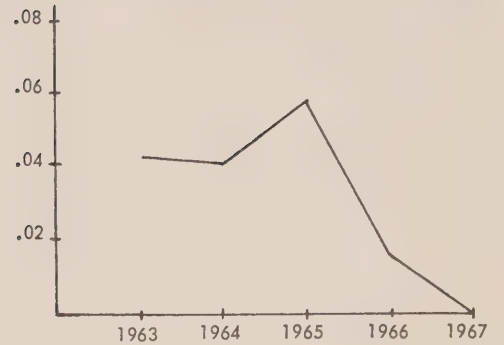


Chart 40

FATAL ACCIDENTS PER MILLION  
AIRCRAFT MILES



Chart 41

PASSENGERS KILLED PER MILLION  
AIRCRAFT MILES



Chart 42

ACCIDENTS PER MILLION  
PASSENGERS CARRIED

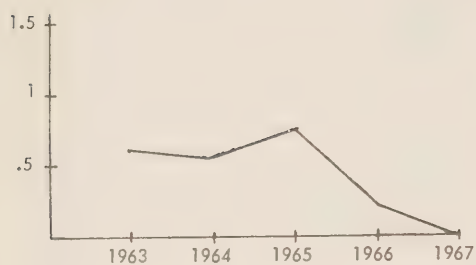


Chart 43

FATAL ACCIDENTS PER MILLION  
PASSENGERS CARRIED

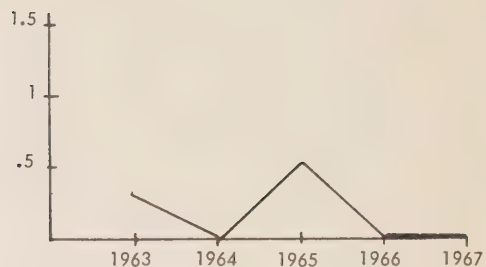


Chart 44

PASSENGERS KILLED PER  
MILLION PASSENGERS CARRIED



Chart 45

ACCIDENTS PER 100 MILLION  
PASSENGER MILES



Chart 46

FATAL ACCIDENTS PER 100 MILLION  
PASSENGER MILES

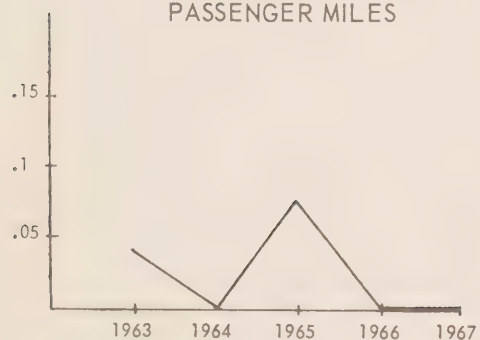
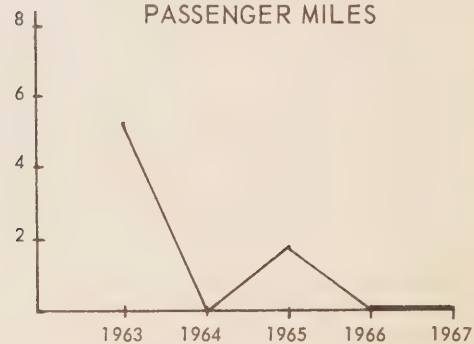


Chart 47

PASSENGERS KILLED PER 100 MILLION  
PASSENGER MILES



## INTERNATIONAL

Chart 48  
HOURS FLOWN

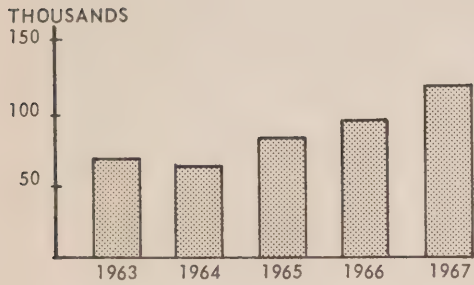


Chart 49  
STAGE FLIGHTS

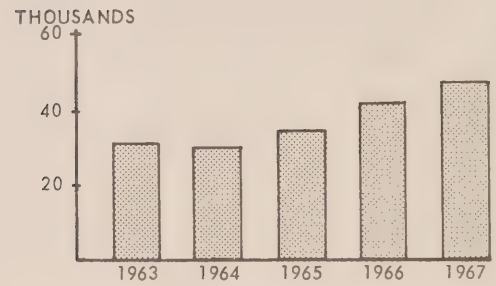


Chart 50  
AIRCRAFT MILES

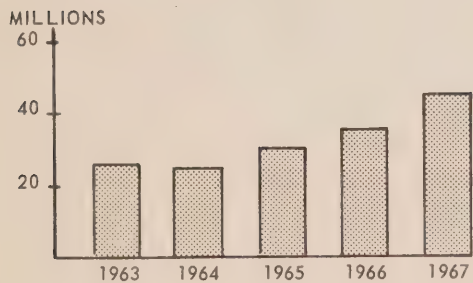


Chart 51  
REVENUE PASSENGERS CARRIED

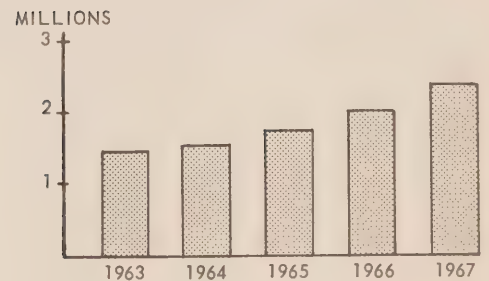


Chart 52

### REVENUE PASSENGER MILES

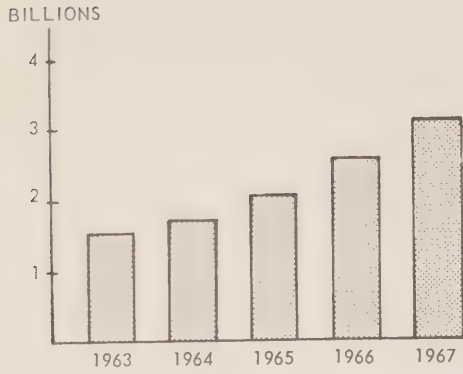


Chart 53

### ACCIDENT RATE PER 10,000 HOURS



Chart 54

### FATAL ACCIDENT RATE PER 10,000 HOURS



Chart 55

### PASSENGERS KILLED PER 10,000 HOURS



Chart 56

### ACCIDENTS PER 10,000 STAGE FLIGHTS





Chart 57

FATAL ACCIDENTS PER 10,000  
STAGE FLIGHTS

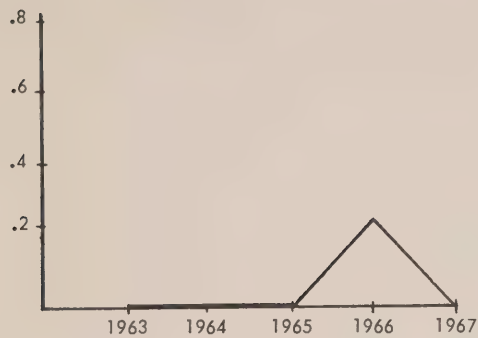


Chart 58

PASSENGERS KILLED PER 10,000  
STAGE FLIGHTS



Chart 59

ACCIDENTS PER MILLION  
AIRCRAFT MILES

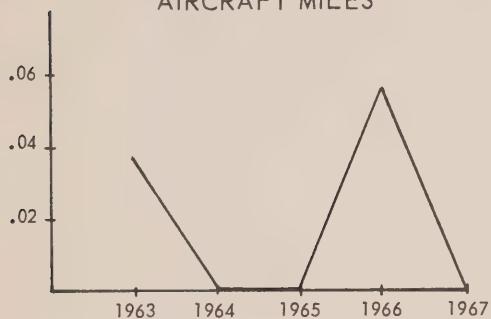


Chart 60

FATAL ACCIDENTS PER MILLION  
AIRCRAFT MILES



Chart 61

PASSENGERS KILLED PER  
MILLION AIRCRAFT MILES



Chart 62

ACCIDENTS PER MILLION  
PASSENGERS CARRIED

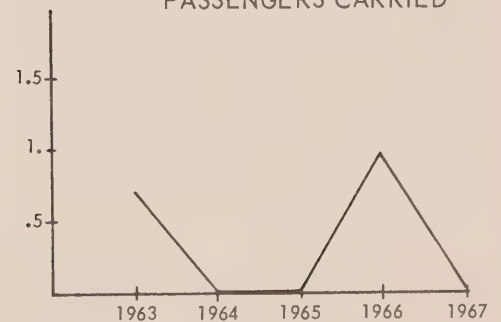


Chart 63

FATAL ACCIDENTS PER MILLION  
PASSENGERS CARRIED



Chart 64

PASSENGERS KILLED PER MILLION  
PASSENGERS CARRIED



Chart 65

ACCIDENTS PER 100 MILLION  
PASSENGER MILES



Chart 66

FATAL ACCIDENTS PER 100 MILLION  
PASSENGER MILES



Chart 67

PASSENGERS KILLED PER 100 MILLION  
PASSENGER MILES



## NON – SCHEDULED UNIT TOLL

Two classes of service are combined here: Class 2 regular specific point and Class 3 irregular specific point. The comments made previously about the movement of the accident rates in scheduled operations apply here equally.

Chart 68

### HOURS FLOWN

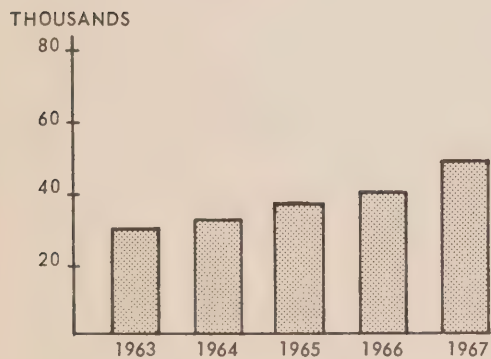


Chart 69

### STAGE FLIGHTS

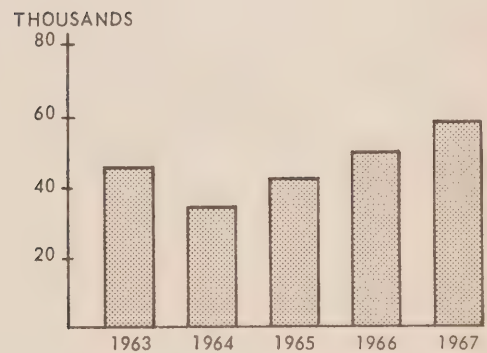


Chart 70

ACCIDENT RATE  
PER 10,000 HOURS



Chart 71

FATAL ACCIDENT RATE  
PER 10,000 HOURS



Chart 72

PASSENGERS KILLED  
PER 10,000 HOURS

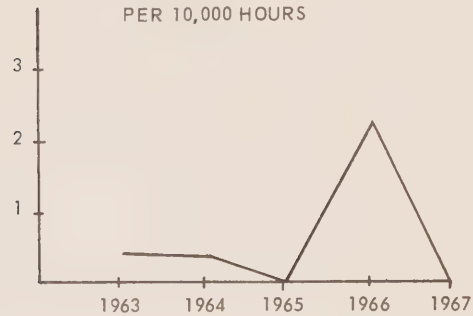


Chart 73

ACCIDENTS PER 10,000  
STAGE FLIGHTS



Chart 74

FATAL ACCIDENTS PER 10,000  
STAGE FLIGHTS





Chart 75

PASSENGERS KILLED PER 10,000  
STAGE FLIGHTS

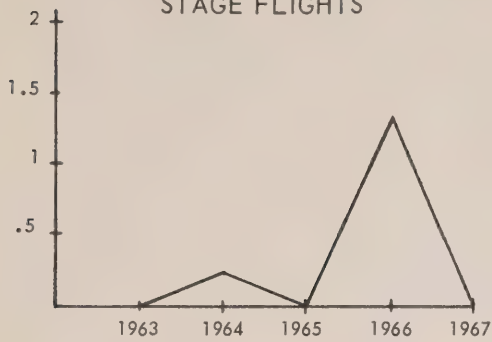


Chart 76

REVENUE PASSENGERS

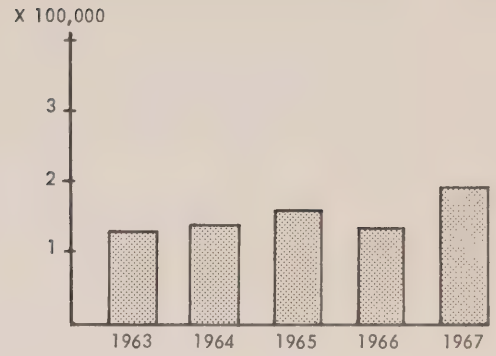


Chart 77

ACCIDENTS PER MILLION  
PASSENGERS CARRIED



Chart 78

FATAL ACCIDENTS PER MILLION  
PASSENGERS CARRIED

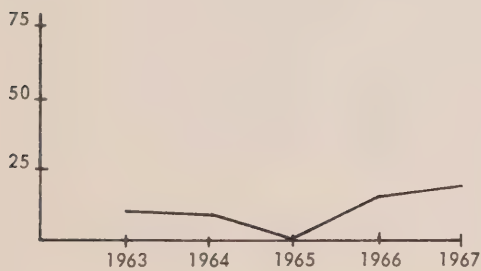


Chart 79

PASSENGERS KILLED PER MILLION  
PASSENGERS CARRIED



## CHARTER AND CONTRACT

Charter and Contract Air Carriers include all Class 4A, 4B, 4C and Class 5 Canadian operators providing services within and from Canada.

A sharp increase in the 1966 and 1967 accident rates has occurred with the results that 1967 has the highest rates for the 5-year period shown.

Chart 80

### HOURS FLOWN

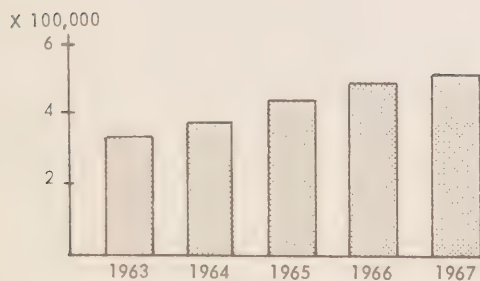


Chart 81

### PASSENGERS CARRIED

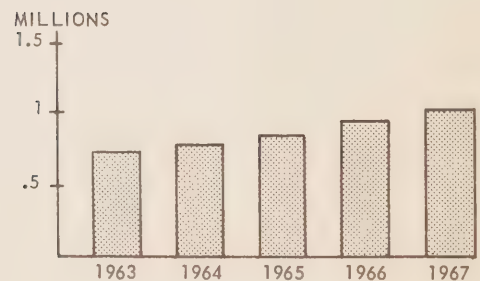


Chart 82

ACCIDENT RATE  
PER 10,000 HOURS



Chart 83

FATAL ACCIDENT RATE  
PER 10,000 HOURS

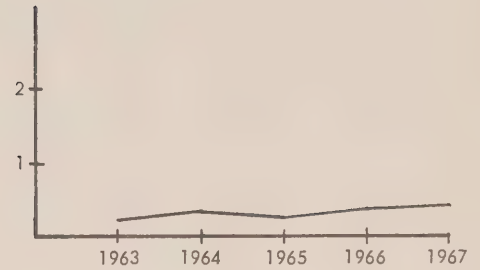


Chart 84

PASSENGERS KILLED  
PER 10,000 HOURS



Chart 85

ACCIDENTS PER MILLION  
PASSENGERS CARRIED

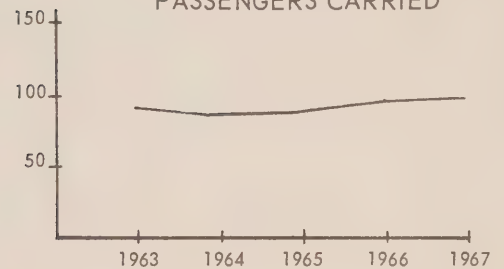


Chart 86

FATAL ACCIDENTS PER MILLION  
PASSENGERS CARRIED

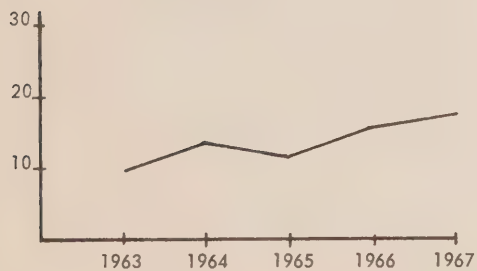
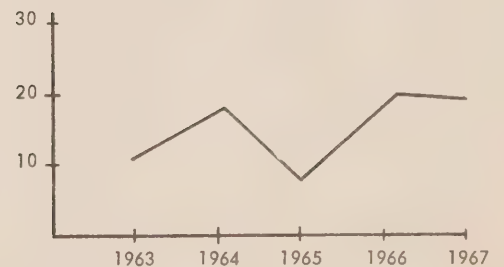


Chart 87

PASSENGERS KILLED PER MILLION  
PASSENGERS CARRIED



## SPECIALTY

A large disparity exists in the activity of the nine classes of operation that belong to this group. The two largest groups, recreational flying and flying training, were combined in one chart while all the others were grouped together. Individual charts for each of the smaller classes would be of questionable value due to the wide yearly fluctuations in the rates. Adding a single accident to any of these classes could easily double or triple the rates.

Charts 88 to 90 show a large increase in the numbers of

hours flown for the past two years and a significant drop in the accident rate for the corresponding period, except for the fatal accident rate which reached a peak in 1966.

These last comments apply equally to Flying Training and Recreational Flying pictured in Charts 91 to 93.

The other classes grouped in Charts 94 to 96 tell a similar story except that the rates peaked in 1965 with a subsequent drop the following year.

Chart 88

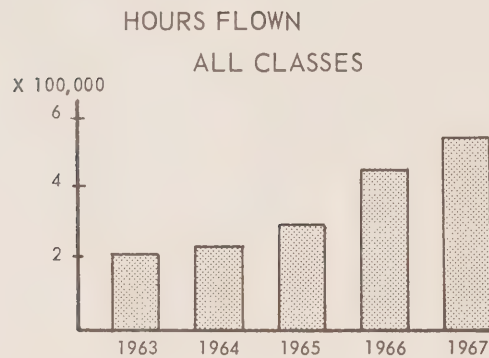


Chart 89

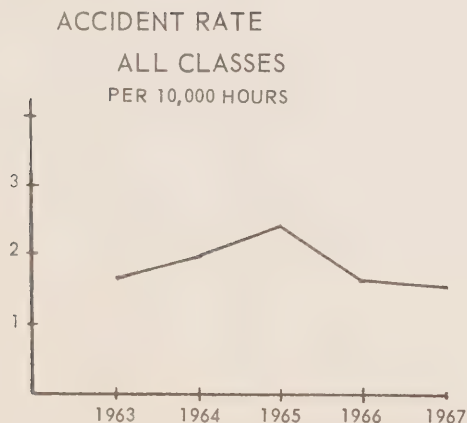
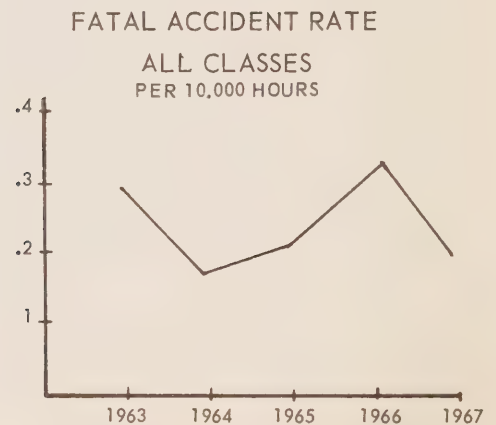


Chart 90





SPECIALTY —  
TRAINING AND RECREATIONAL

Chart 91  
HOURS FLOWN

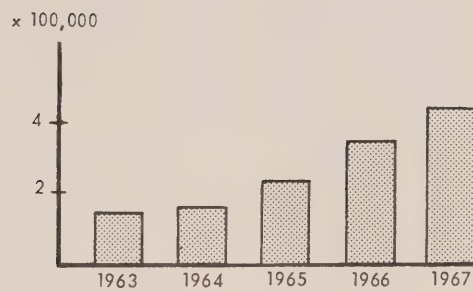
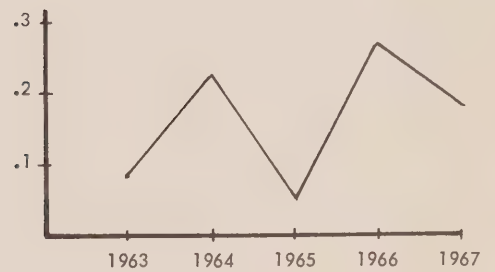


Chart 92  
ACCIDENT RATE  
PER 10,000 HOURS



Chart 93  
FATAL ACCIDENT RATE  
PER 10,000 HOURS



SPECIALTY —  
ALL OTHERS

Chart 94  
HOURS FLOWN

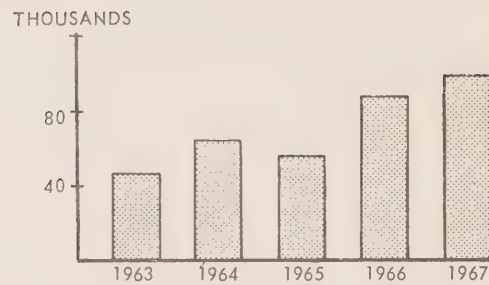


Chart 95  
ACCIDENT RATE  
PER 10,000 HOURS



Chart 96  
FATAL ACCIDENT RATE  
PER 10,000 HOURS



## FLYING CLUBS

This class of operation is very much akin to the 7RF and 7FT in purpose and scope except that the organization is non-profit and formed expressly for the benefit of its members.

As their counterpart in Specialty Services, they experienced a large increase in flying activity in the last two years.

The accident rate peaked in 1965 and improved considerably in 1966 with a slight increase again in 1967.

The Fatal Accident Rate, unlike the others increased sharply in 1967, however, as the rate is the product of only 4 fatal accidents, it may not be too significant.

Chart 97

### HOURS FLOWN

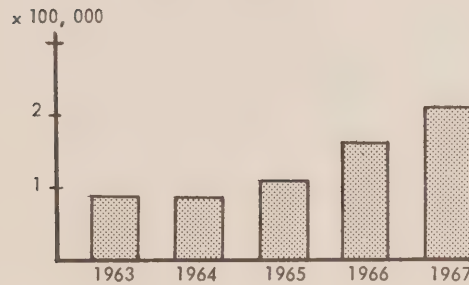


Chart 98

### ACCIDENT RATE PER 10,000 HOURS



Chart 99

### FATAL ACCIDENT RATE PER 10,000 HOURS



## PRIVATE OPERATIONS

The hours flown in this category of operations are based on yearly average utilization figures which are really only estimates. The same technique was used for each of the years represented here and should provide a reasonable relationship between them although the level may not be entirely accurate.

As with all other flying activities, private operations have shown a large increase in the number of hours flown for the years 1966 and 1967 (Chart 103). Unfortunately a steady increase in the accident rate (Chart 104) has occurred over the past five years. The fatal accident rate was improving somewhat until 1966 and then again started to worsen.

Chart 100

### PRIVATE AIRCRAFT WITH VALID C OF A

THOUSANDS

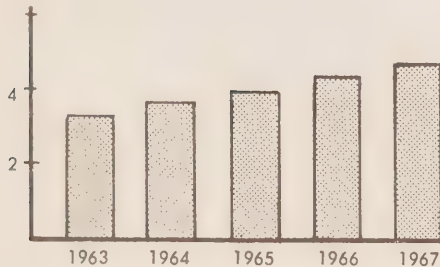


Chart 101

### GLIDER PILOTS

HUNDREDS

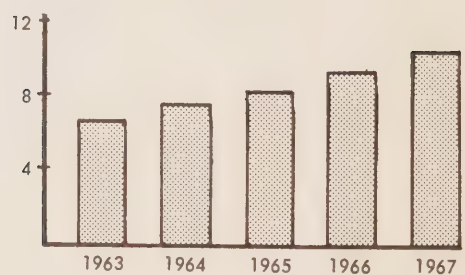


Chart 102

### PRIVATE PILOTS

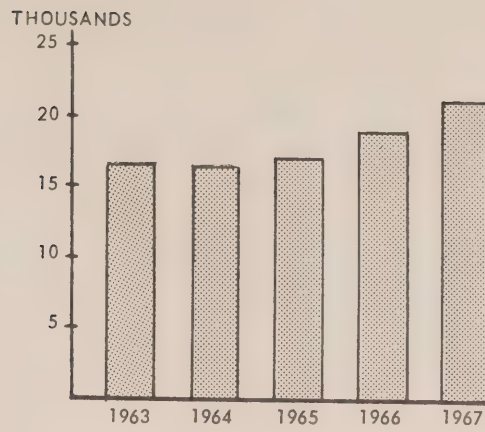


Chart 103

### HOURS FLOWN

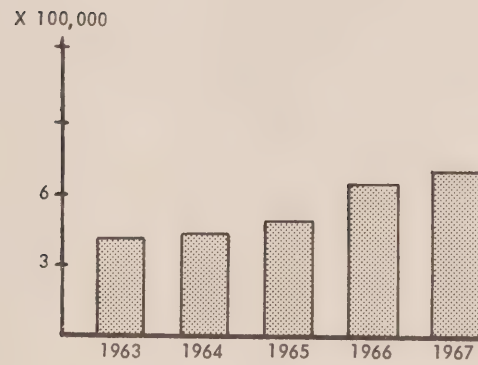


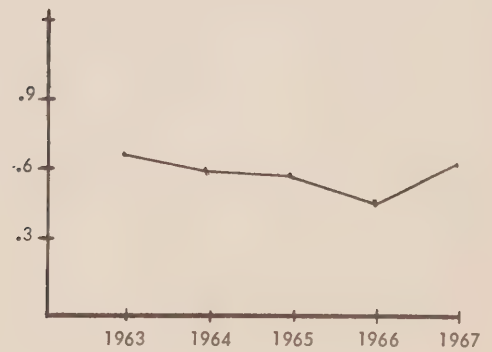
Chart 104

### ACCIDENT RATE PER 10,000 HOURS



Chart 105

### FATAL ACCIDENT RATE PER 10,000 HOURS





## STATE OPERATIONS

This class covers all federal and provincial government operated aircraft. These aircraft are put to a multitude of uses, ranging from water bombing to executive type transportation.

The hours flown, like private operations are estimates only based on yearly utilization rates. As seen on Chart 107 the number of hours have not changed significantly over the past five years but the rates (Charts 108 and 109) have fluctuated considerably as can be expected with a small operation.

Chart 106

### STATE AIRCRAFT WITH VALID C OF A

HUNDREDS

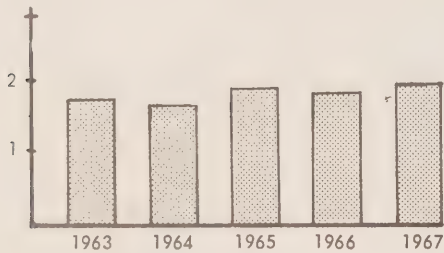


Chart 107

### HOURS FLOWN

X 10,000

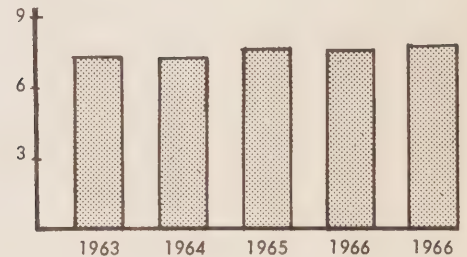


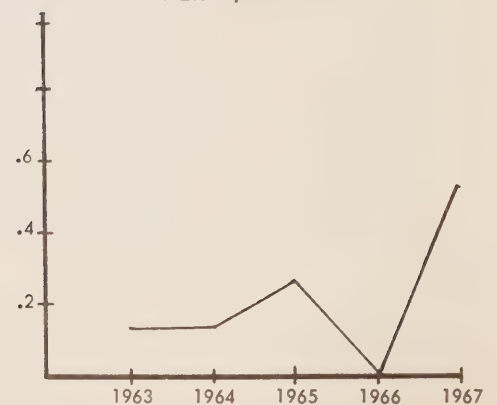
Chart 108

### ACCIDENT RATE PER 10,000 HOURS



Chart 109

### FATAL ACCIDENT RATE PER 10,000 HOURS









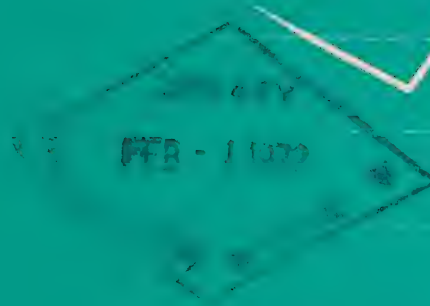




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prepared by  
AIRCRAFT ACCIDENT INVESTIGATION DIVISION  
CANADA • MINISTRY OF TRANSPORT





# **AIRCRAFT ACCIDENTS • CANADA**

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## **1968**

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**a  
statistical  
summary**

Aircraft Accident Investigation Division  
Ministry of Transport  
Ottawa • Canada

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## *The 1968 picture*

The intent of this accident survey is to provide statistical information for the use of persons and organizations having a direct interest in Canadian aviation. For example, an operator will be able to assess his accident record against the record of all similar operators and he will be able to see the extent to which his group contributed to the total aircraft accident picture. Hopefully, the content of this document will stimulate a constructive interest in aviation safety and give aircraft operators some indication of the relative safety of their own operations.

Although the report enables comparisons with operations of different types, such comparisons should be made with restraint. Due to the wide variance in the levels of hazard inherent in various operations, comparisons are not always meaningful. For instance, one hour flying in crop-dusting operations entails more risk than one hour of cruising flight in a multi-engined aircraft. Thus, as accident rates are based on flying hours, crop-dusting may appear disproportionately high, creating the mistaken impression that these flights are not being conducted properly. To resolve this it may be necessary to view the accident rates for the two types of operations by accidents per unit of departure, or by some other measure of aircraft activity. The most valid comparison is that in which one type of operational activity is compared with the same type for the previous years.

The aircraft activity data for this publication were provided by the Aviation Statistics Centre, Dominion Bureau of Statistics, the Air Transport Committee, the Canadian Transportation Commission and the Civil Aviation Branch, Ministry of Transport.



# Glossary of terms

---

## ACCIDENT

*an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, in which:*

- any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or*
- the aircraft receives substantial damage, is destroyed or missing.*

## AIR CARRIERS

### Charter

*Air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft*

### Contract

*Air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.*

### International Schedule

*Carriers designated by the Government to operate international scheduled air services between Canada and any other State, pursuant to an international agreement or agreements to which Canada is a party.*

### Irregular Specific Point

*air carriers who offer public transportation of persons, mails and/or goods by aircraft, from a designated base, serving a defined area or a specific point or points, at a toll per unit.*

### Regular Specific Point

*air carriers who offer transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.*

### Scheduled

*air carriers who offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit.*

## AIRCRAFT

*any machine that can derive support in the atmosphere from reaction of the air.*

## POSITIONING

*a non-revenue flight for operational reasons*

## SERIOUS INJURY

*an injury requiring treatment, and results in suspension of normal activity for five or more days and includes*

- unconsciousness*
- bone fracture except simple fracture of finger or toe*
- lacerations of muscles or those which cause severe hemorrhage*
- injury to an internal organ*
- second or third degree burns or burns on more than 5% of the body.*

## SPECIALTY OPERATIONS

*recreational flying, flying training, aerial photography, aerial photography and survey, aerial application and distribution, aerial inspection, reconnaissance and advertising, aerial control, aerial construction.*

## UNIT TOLL

*public transportation of passengers and goods at a toll per unit*

# Summary of Accidents

*by type of operation*

TYPE OF OPERATION	FIXED WING			ROTARY WING			TOTALS		GRAND TOTALS
	Fatal	Non-fatal	Total	Fatal	Non-fatal	Total	Fatal	Non-fatal	
<b>SCHEDULED – DOMESTIC</b>		1	1					1	1
<b>NON-SCHEDULED DOMESTIC</b>									
Regular Specific Point	1	2	3				1	2	3
Irregular Specific Point		1	1					1	1
Charter – Group A		1	1					1	1
Charter – Group B	13	42	55		7	7	13	49	62
Charter – Group C		5	5	2	28	30	2	33	35
<b>FLYING CLUB</b>									
Flying Training	1	19	20				1	19	20
Recreational Flying	1	15	16				1	15	16
<b>SPECIALITY</b>									
Flying Training	3	23	26		1	1	3	24	27
Recreational Flying	2	16	18		2	2	2	18	20
Aerial Photography and Survey		4	4	1		1	1	4	5
Aerial Application and Distribution		7	7					7	7
Aerial Inspection, Reconnaissance and Advertising					5	5		5	5
Aerial Control	1	2	3				1	2	3
<b>PRIVATE</b>									
Ferry	2	2	4				2	2	4
Company Business	5	31	36		2	2	5	33	38
Test		3	3					3	3
Training – Check		13	13		1	1		14	14
Recreational Flying	26	122	148	2	2	4	28	124	152
Aerial Post Control	1		1				1		1
<b>MISCELLANEOUS</b>									
Positioning	2	15	17	2	7	9	4	22	26
Ferry		2	2	1		1	1	2	3
State	2	5	7		6	6	2	11	13
Contract		1	1		1	1		2	2
<b>TOTALS</b>	60	332	392	8	62	70*	68	394	462

(does not include the 30 USA-registered aircraft involved in accidents in Canada in 1968)

\*Includes four gyrocopter accidents

## Summary of Casualties

*by type of operation*

TYPE OF OPERATION	FIXED WING										ROTARY WING										TOTALS		GRAND TOTALS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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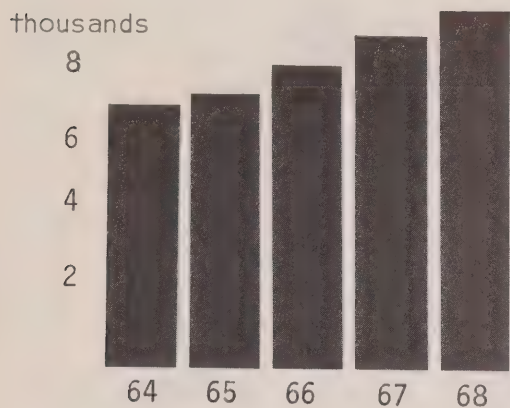
(includes 2 mid-air collisions which resulted in 3 fatalities)

F-fatality S-serious injury

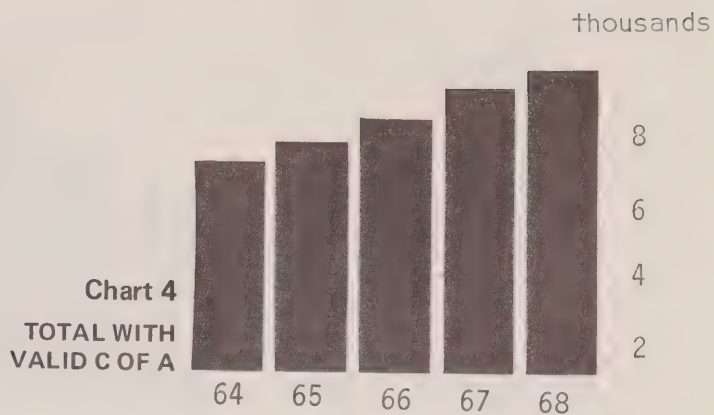


# Number of Registered Aircraft

*Canadian registry*



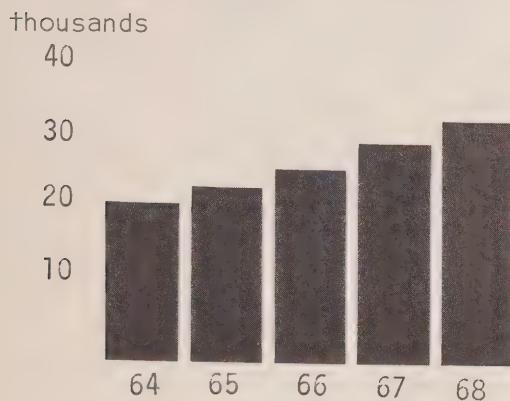
**Chart 3**  
**TOTALS**



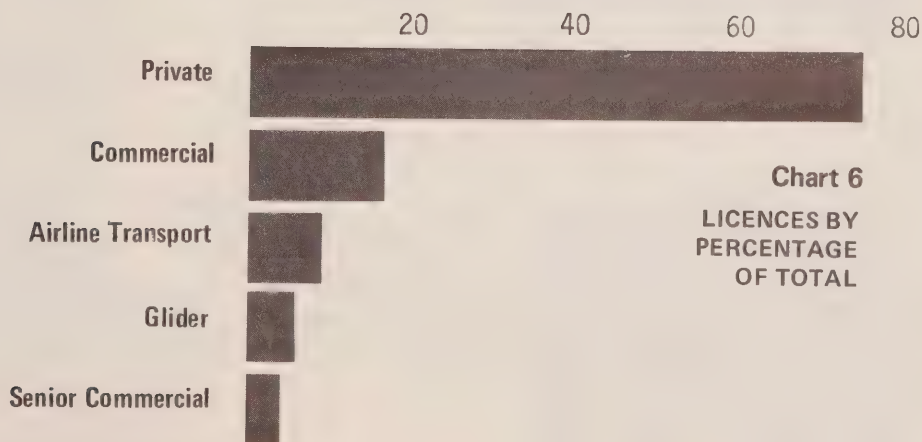
**Chart 4**  
**TOTAL WITH**  
**VALID C OF A**

## Pilot Population

*Canadian licensed*



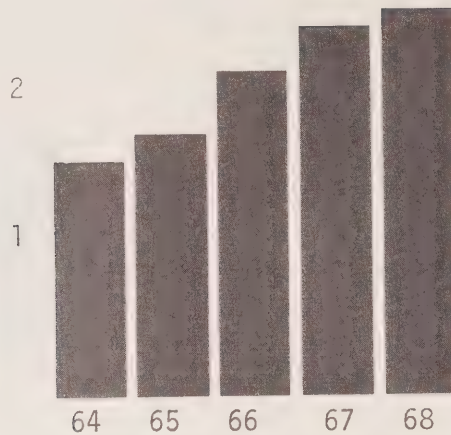
**Chart 5**  
**TOTAL NUMBER OF**  
**LICENCED PILOTS**



**Chart 6**  
**LICENCES BY**  
**PERCENTAGE**  
**OF TOTAL**

# Aircraft Activity

3 millions



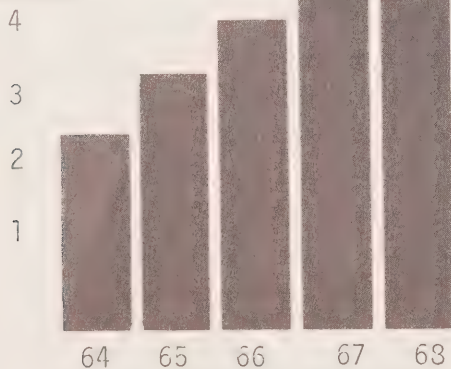
**Chart 7**

## HOURS FLOWN BY CANADIAN AIRCRAFT

*The substantial increase shown in this chart and in Chart 3 attests to the vigorous growth of Canadian aviation in 1968.*

# Number of Accidents

hundreds



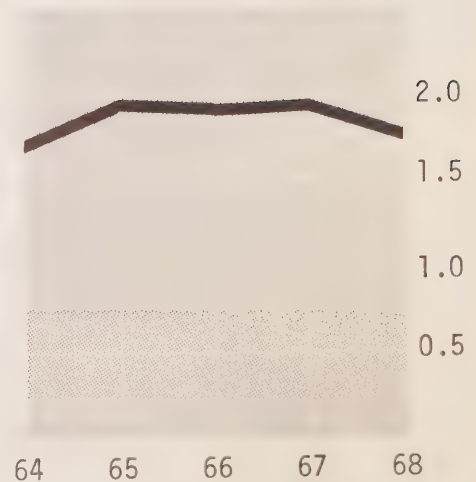
**Chart 8**

## NUMBER OF ACCIDENTS TO CANADIAN AIRCRAFT

**Chart 9**

## NUMBER OF ACCIDENTS PER 10000 HRS

*(Accidents to foreign aircraft in Canada: 1964 — 23; 1965 — 28; 1966 — 39; 1967 — 41; 1968 — 30.)*





# Casualties

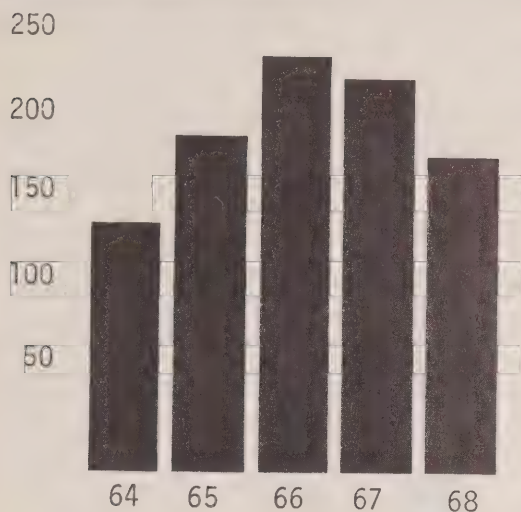


Chart 10  
TOTAL CASUALTIES

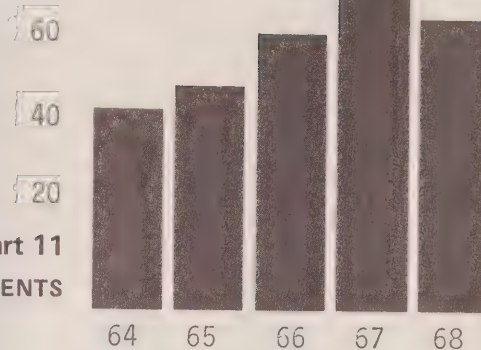


Chart 11  
FATAL ACCIDENTS

Chart 12  
FATAL ACCIDENTS  
PER 10000 HOURS

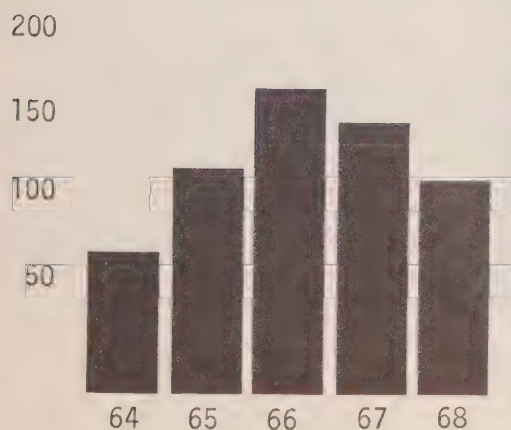
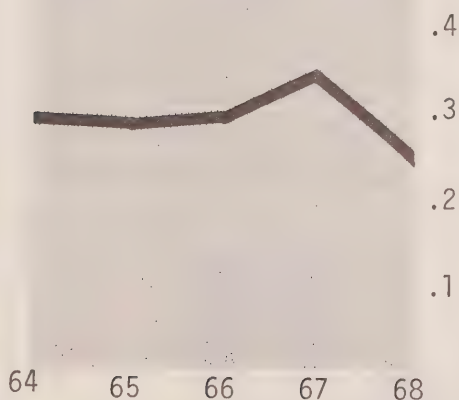


Chart 13  
FATALITIES

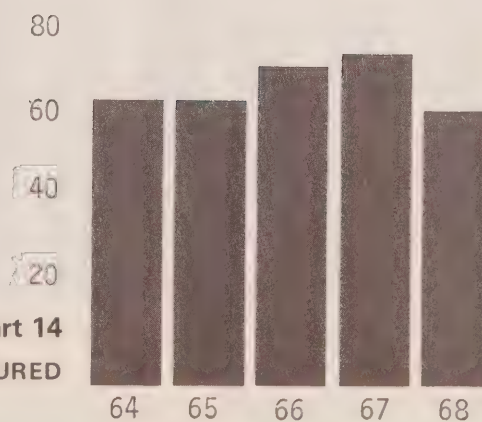
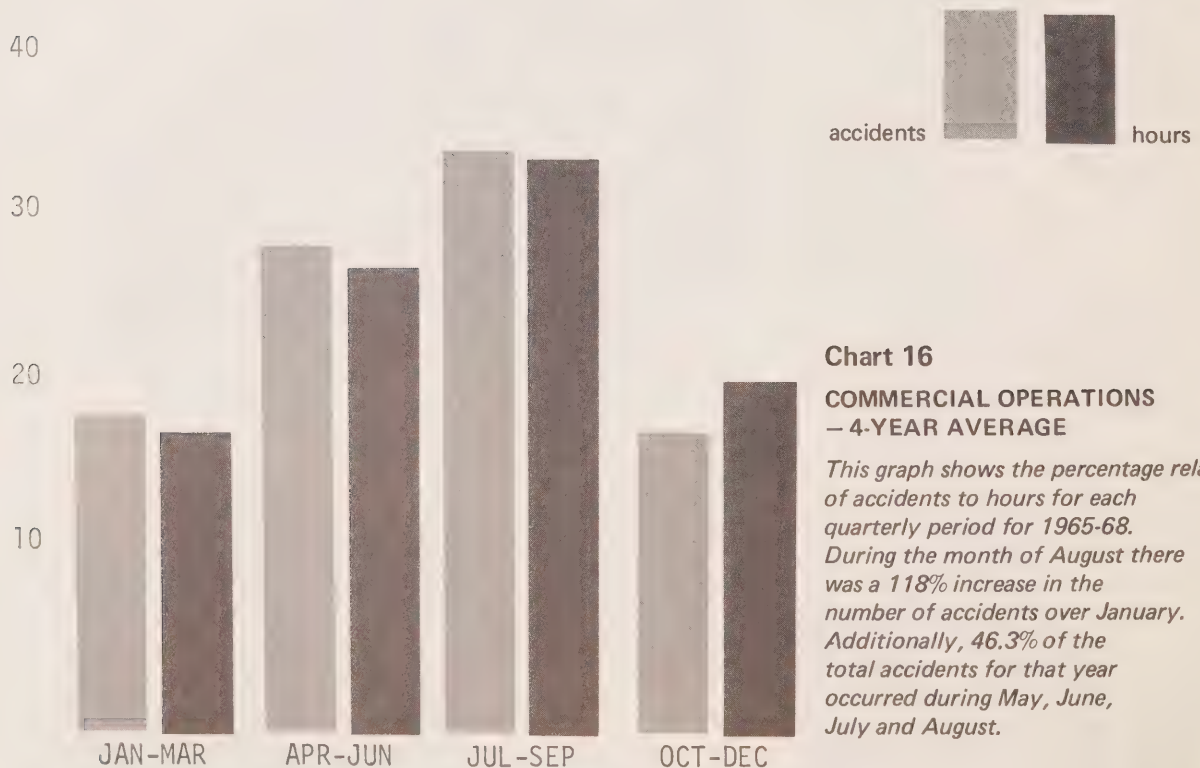
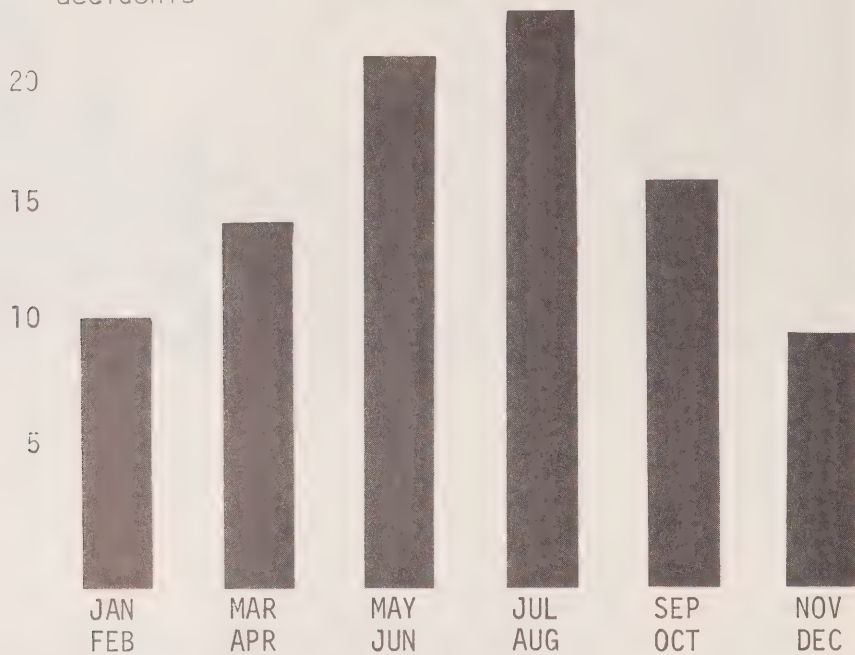


Chart 14  
SERIOUSLY INJURED

# Accidents by Time of Year

**Chart 15** 25 % of total accidents



**Chart 16**

## COMMERCIAL OPERATIONS — 4-YEAR AVERAGE

*This graph shows the percentage relationship of accidents to hours for each quarterly period for 1965-68. During the month of August there was a 118% increase in the number of accidents over January. Additionally, 46.3% of the total accidents for that year occurred during May, June, July and August.*

# Accidents by Type of Operation

Charts 17 to 25 depict for each class of operation its share in percentage of the total hours flown by Canadian aircraft and its share of all accidents.

hours flown  
% of accidents

Chart 17

## SCHEDULED AIRCRAFT

Scheduled aircraft flew 16.4% of the total hours and incurred only .22% of the accidents.

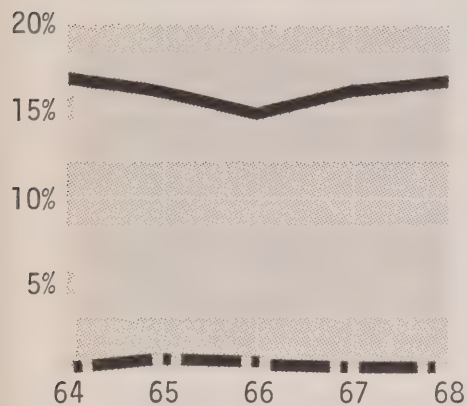


Chart 18

## NON-SCHEDULED AIRCRAFT

Non-scheduled aircraft had an accident rate of twenty-four times that of scheduled aircraft.

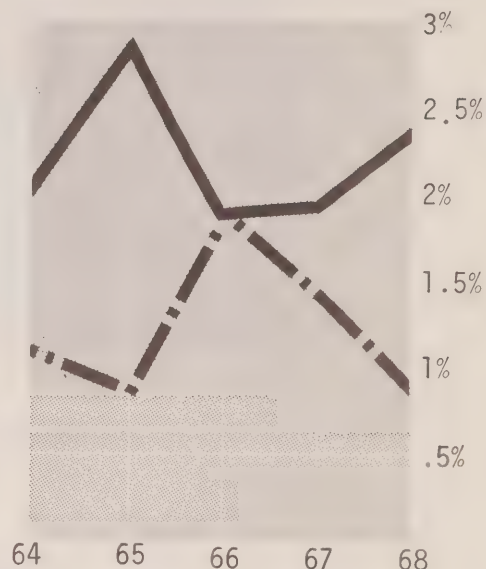


Chart 20

## STATE AIRCRAFT

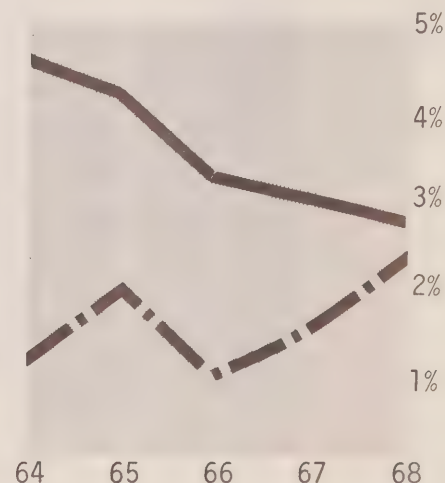


Chart 19

## PRIVATE AIRCRAFT

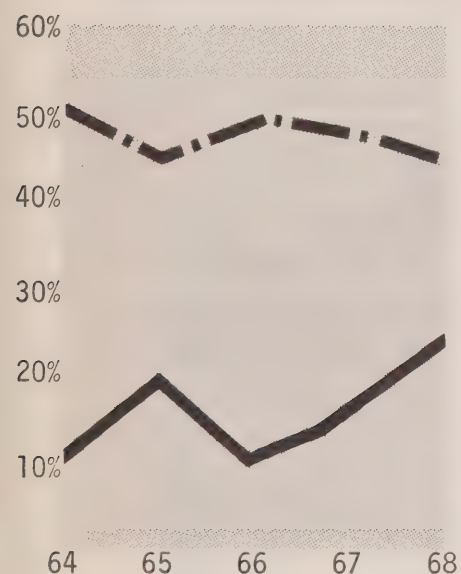


Chart 21

## SPECIALTY — RF AND FT

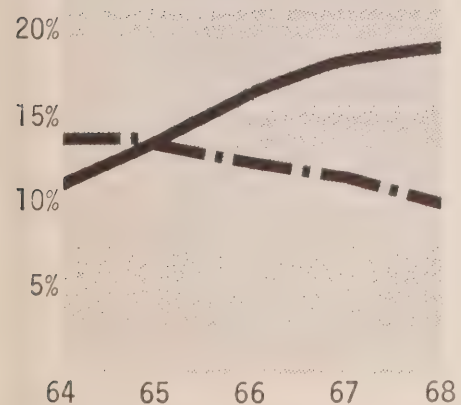
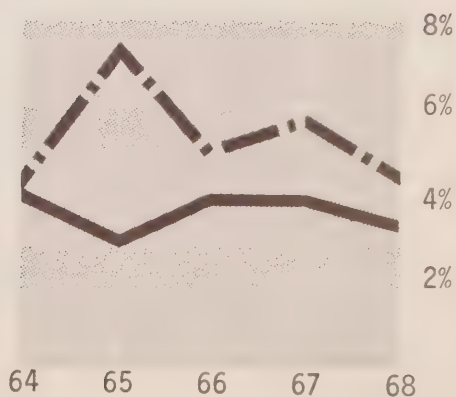


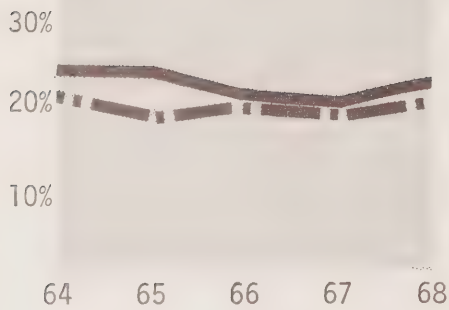
Chart 22

## SPECIALTY — OTHERS

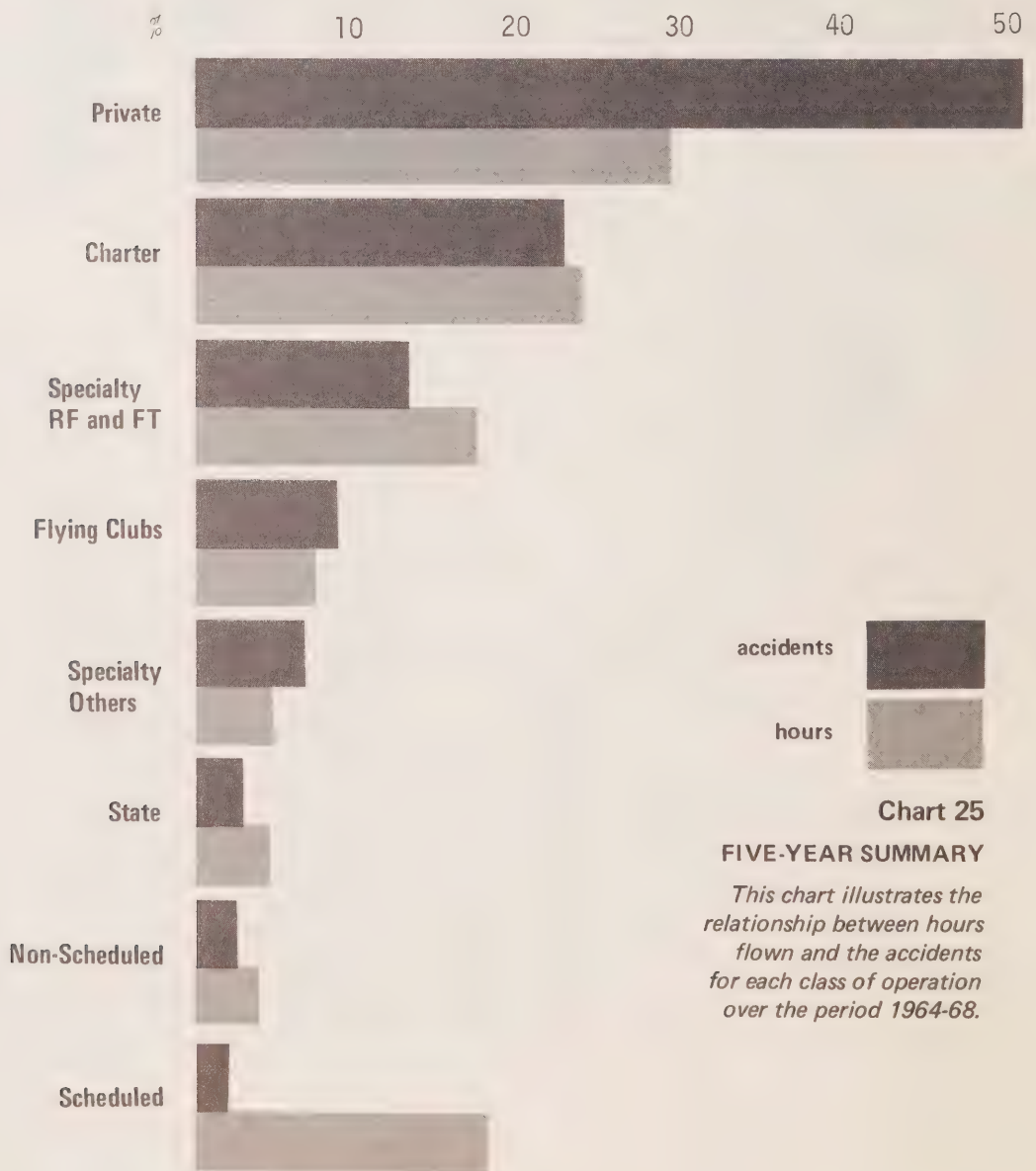
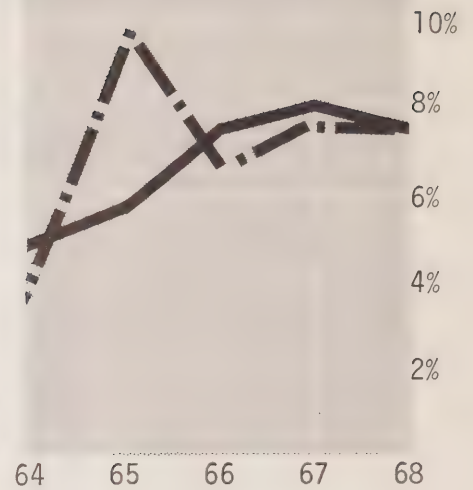




**Chart 23**  
**CHARTER SERVICES**



**Chart 24**  
**FLYING CLUBS**

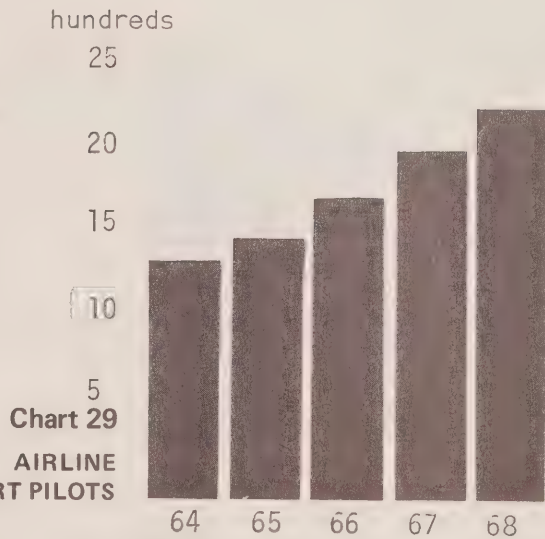
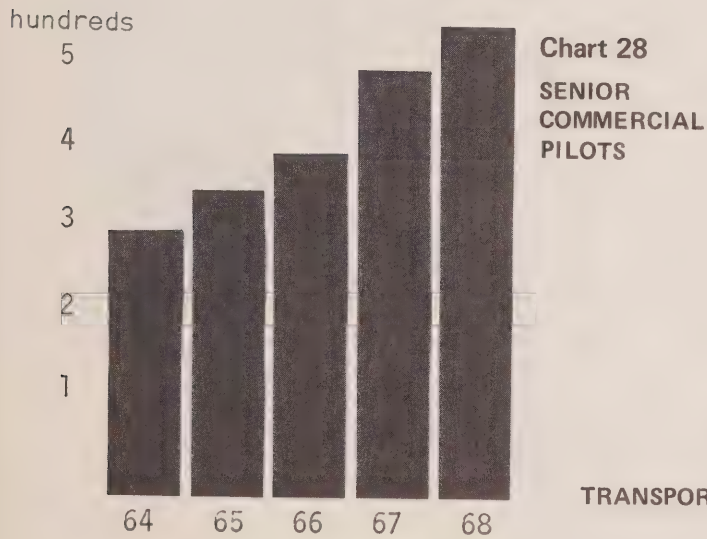
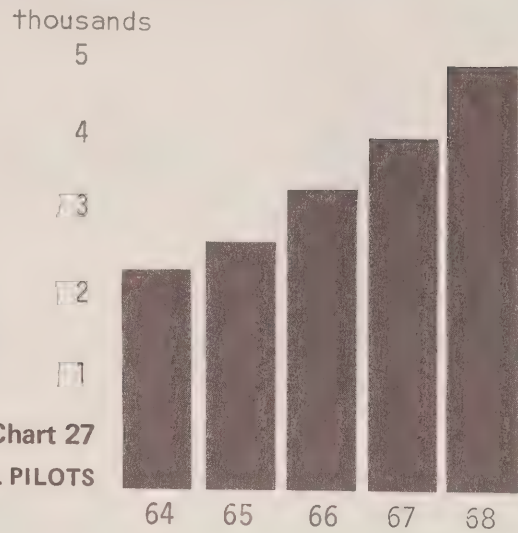
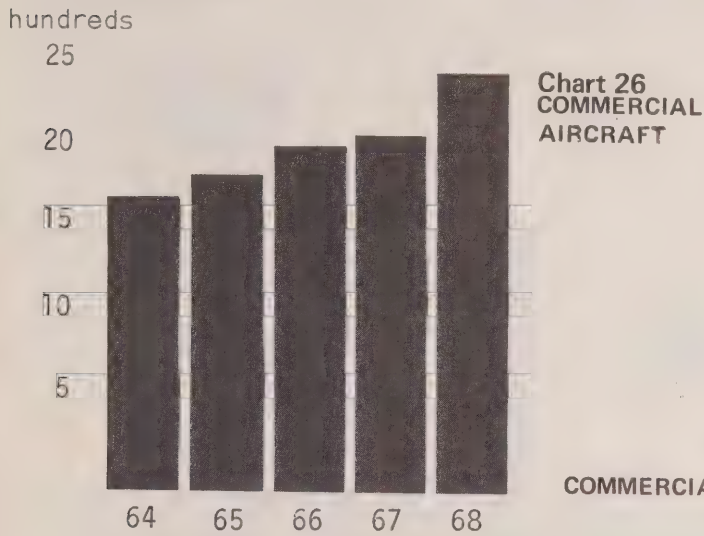


**Chart 25**  
**FIVE-YEAR SUMMARY**

*This chart illustrates the relationship between hours flown and the accidents for each class of operation over the period 1964-68.*

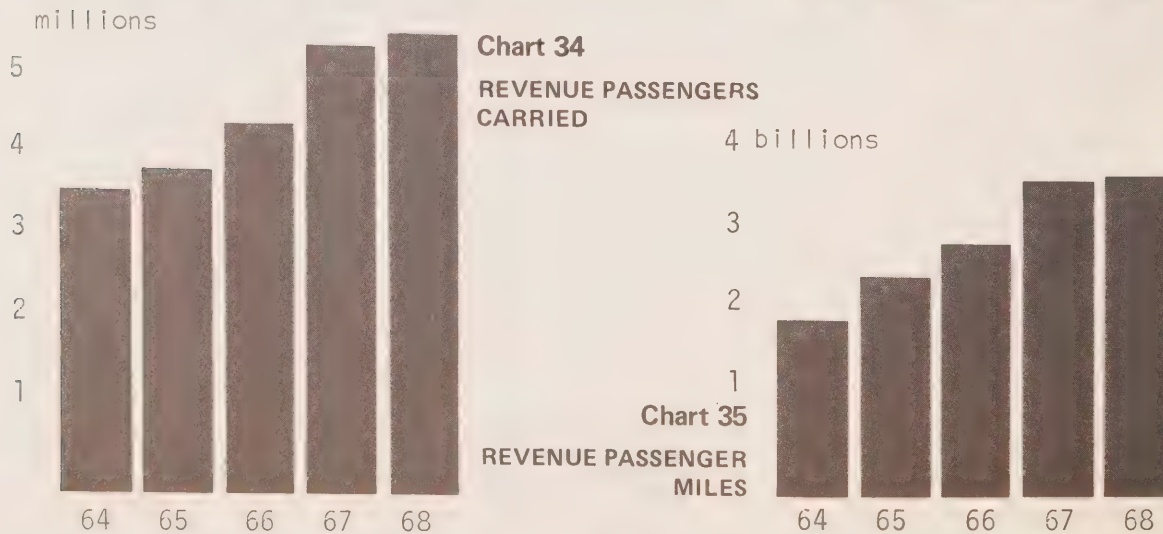
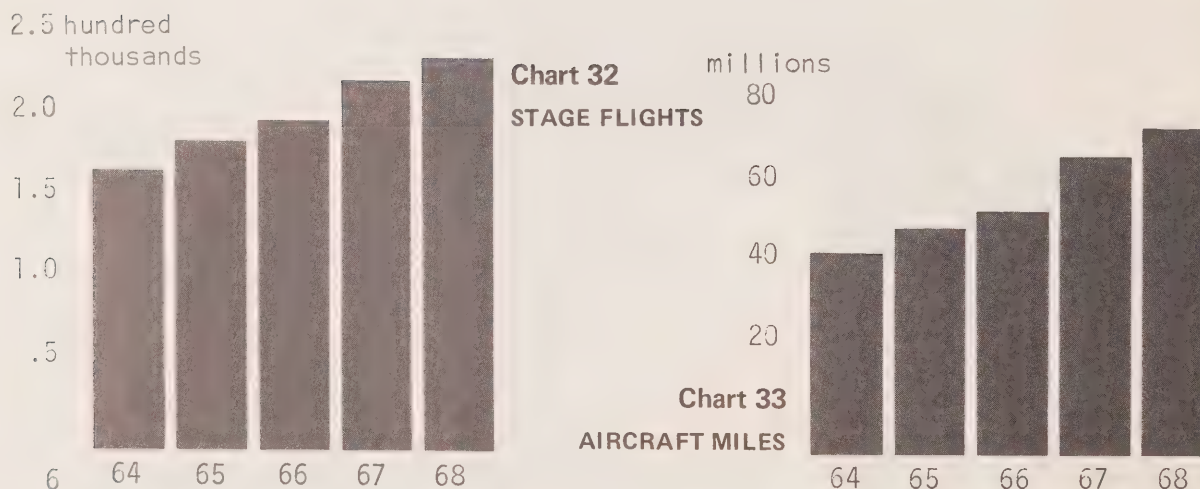
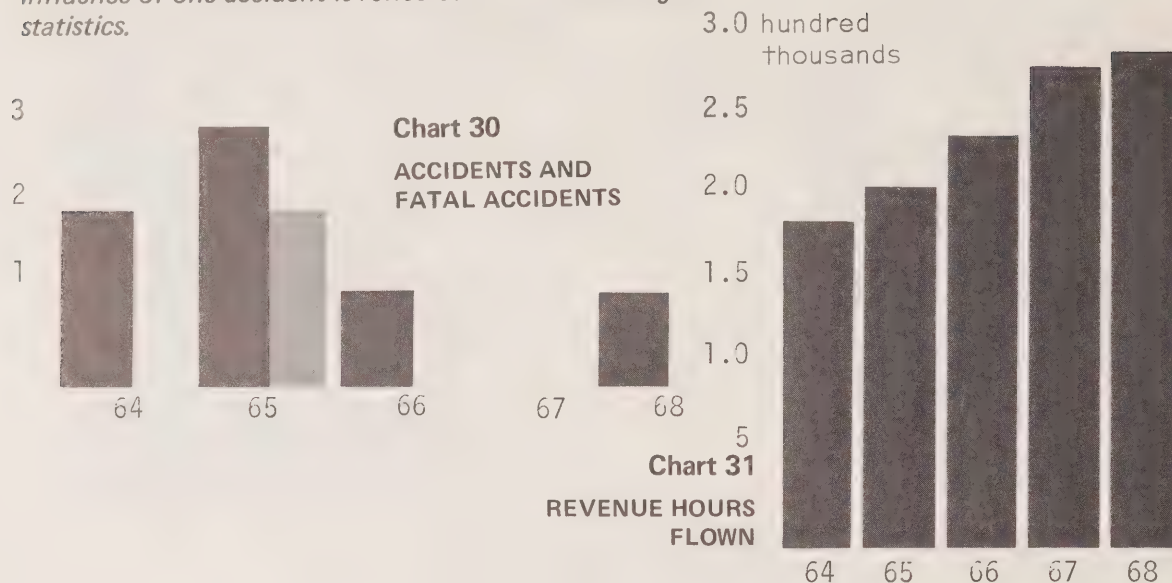
# Commercial Operations

*In 1968 commercial aircraft accounted for approximately 70% of aircraft hours.*



# Domestic - Scheduled

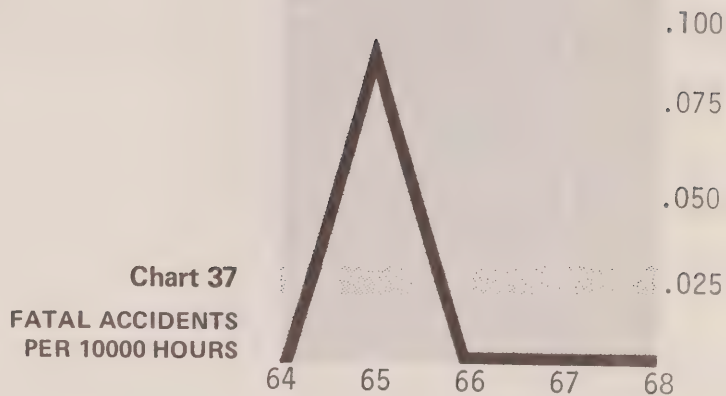
*Few accidents occur in this class of operation; therefore, the influence of one accident is reflected to a marked degree in the statistics.*



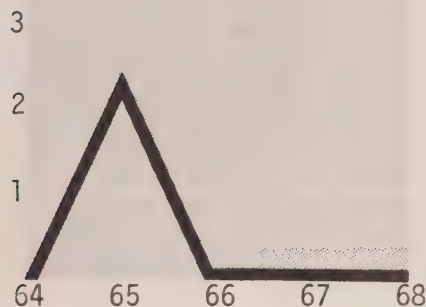




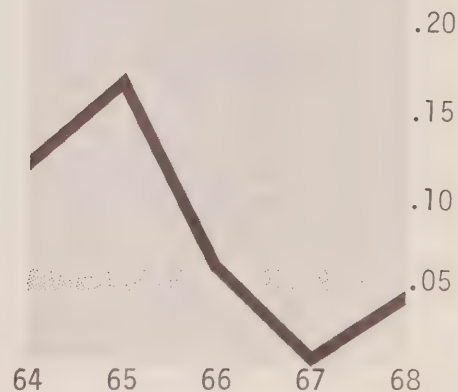
**Chart 36**  
ACCIDENTS PER  
10000 HOURS



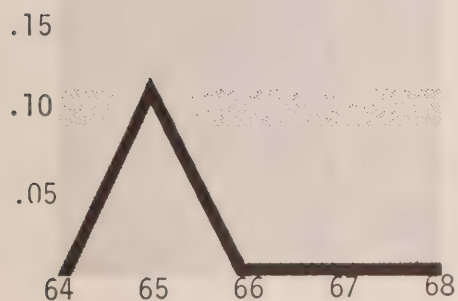
**Chart 37**  
FATAL ACCIDENTS  
PER 10000 HOURS



**Chart 38**  
PASSENGERS KILLED  
PER 10000 HOURS

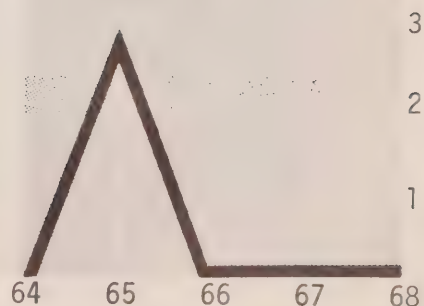


**Chart 39**  
ACCIDENTS PER  
10000 STAGE FLIGHTS



**Chart 40**  
FATAL ACCIDENTS  
PER 10000 STAGE  
FLIGHTS

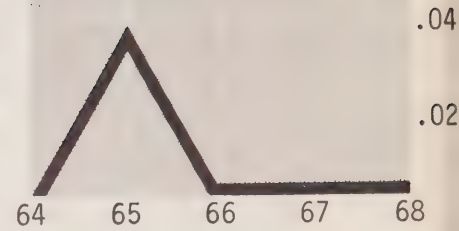
**Chart 41**  
PASSENGERS KILLED  
PER 10000 STAGE  
FLIGHTS



**Chart 42**  
ACCIDENTS PER  
MILLION AIRCRAFT  
MILES



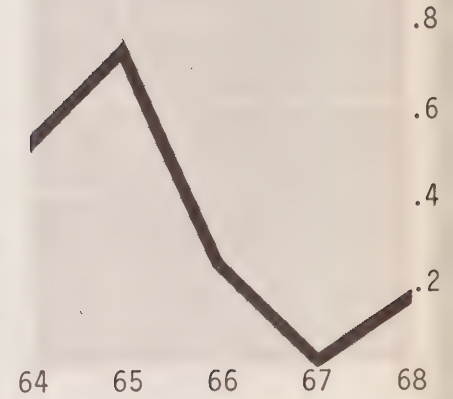
**Chart 43**  
FATAL ACCIDENTS  
PER MILLION  
AIRCRAFT MILES



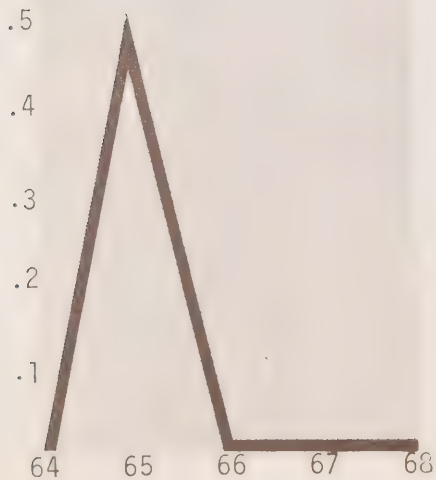
**Chart 44**  
PASSENGERS KILLED  
PER MILLION  
AIRCRAFT MILES



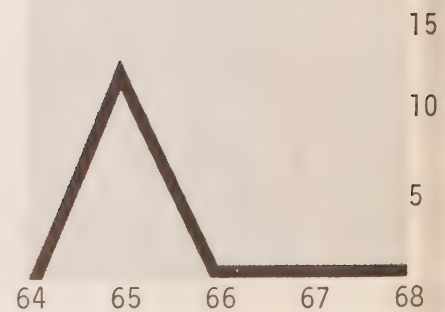
**Chart 45**  
ACCIDENTS PER  
MILLION PASSENGERS  
CARRIED

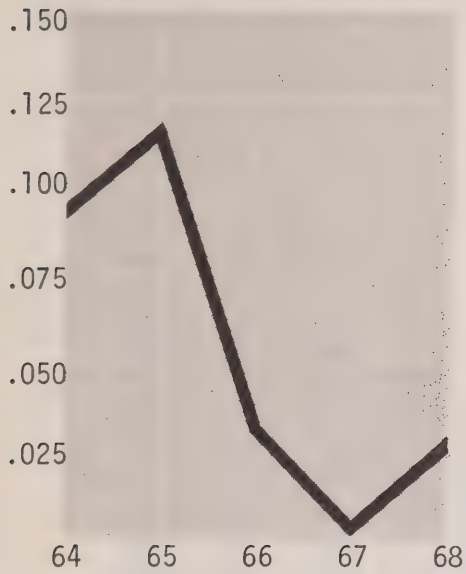


**Chart 46**  
FATAL ACCIDENTS  
PER MILLION  
PASSENGERS CARRIED



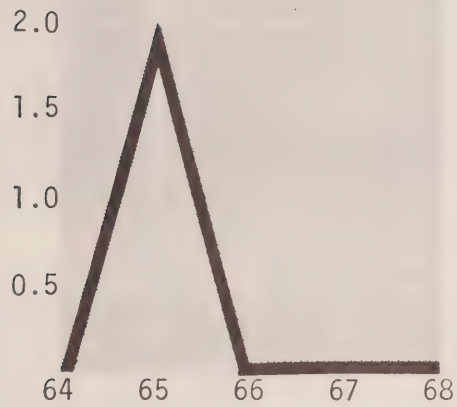
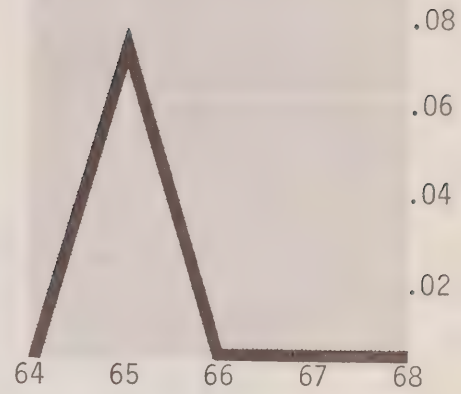
**Chart 47**  
PASSENGERS KILLED  
PER MILLION  
PASSENGERS CARRIED





**Chart 48**  
**ACCIDENTS PER**  
**HUNDRED MILLION**  
**PASSENGER MILES**

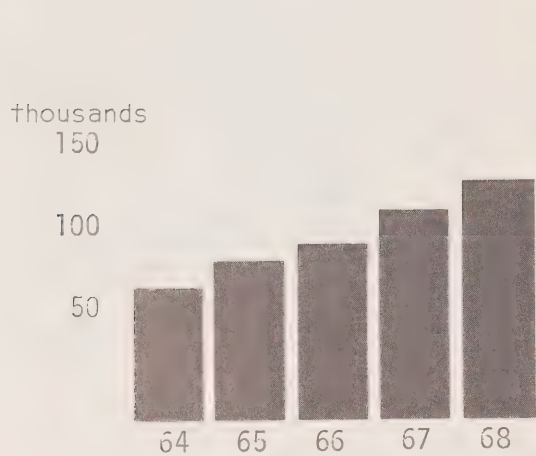
**Chart 49**  
**FATAL ACCIDENTS PER**  
**HUNDRED MILLION**  
**PASSENGER MILES**



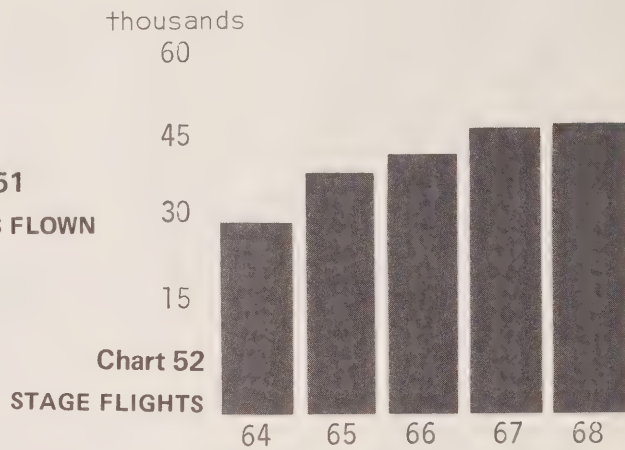
**Chart 50**  
**PASSENGERS KILLED PER**  
**HUNDRED MILLION**  
**PASSENGER MILES**

# International - Scheduled

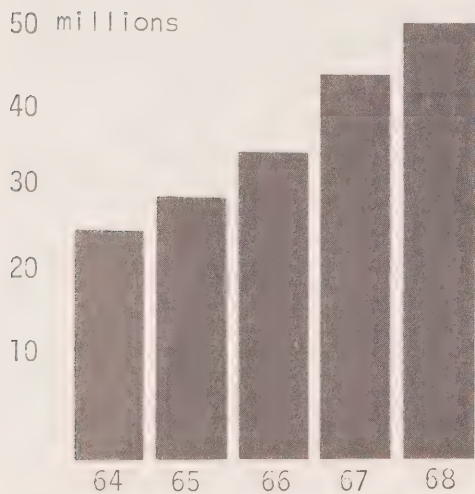
*Few accidents occur in this class of operation; therefore, the influence of one accident is reflected to a marked degree in the statistics. There were no accidents in 1968 to Canadian scheduled services on International routes.*



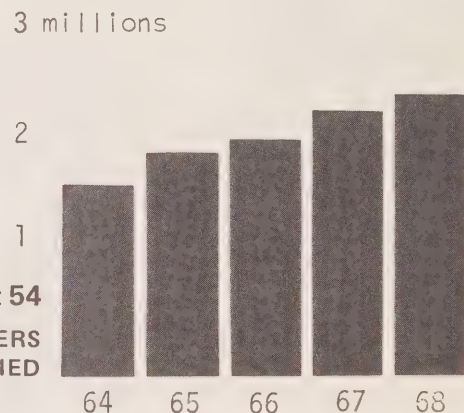
**Chart 51**  
**HOURS FLOWN**



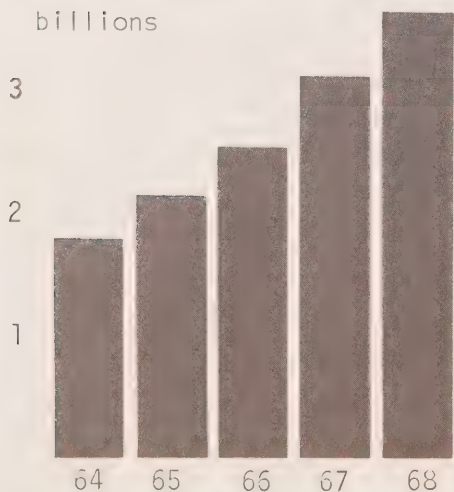
**Chart 52**  
**STAGE FLIGHTS**



**Chart 53**  
**AIRCRAFT MILES**

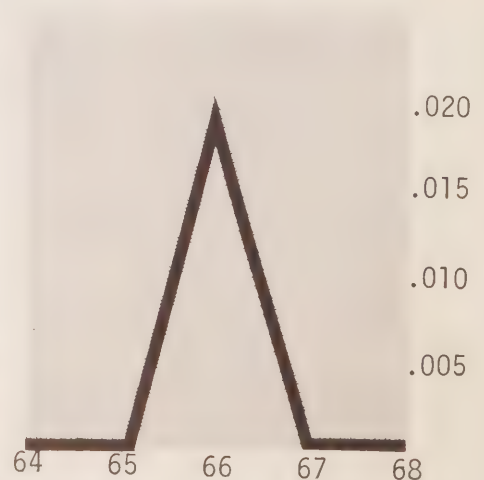


**Chart 54**  
**REVENUE PASSENGERS CARRIED**



**Chart 55**  
**REVENUE PASSENGER MILES**

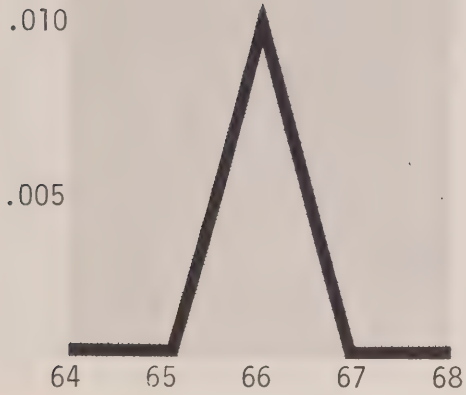
**Chart 56**  
**FATAL ACCIDENTS PER 10000 HOURS**





**Chart 57**

**FATAL ACCIDENTS  
PER 10000 HOURS**



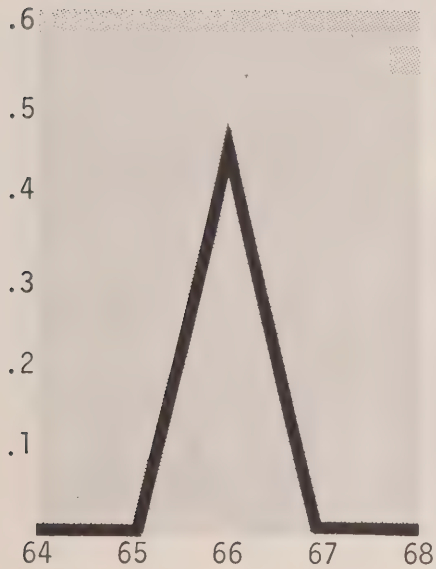
**Chart 58**

**PASSENGERS KILLED  
PER 10000 HOURS**



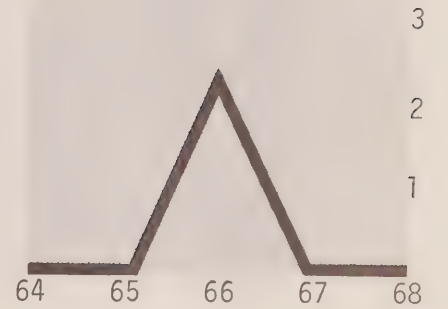
**Chart 59**

**ACCIDENTS PER  
10000 STAGE FLIGHTS**



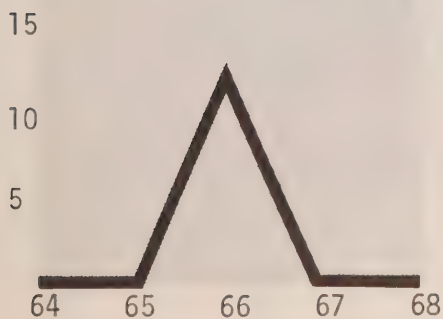
**Chart 60**

**FATAL ACCIDENTS PER  
10000 STAGE FLIGHTS**



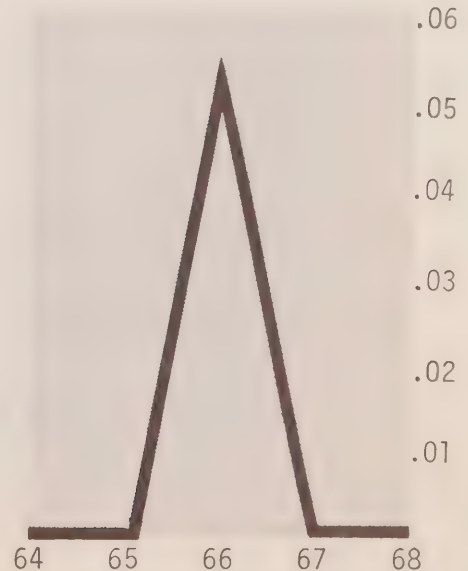
**Chart 61**

**PASSENGERS KILLED  
PER 10000 STAGE  
FLIGHTS**



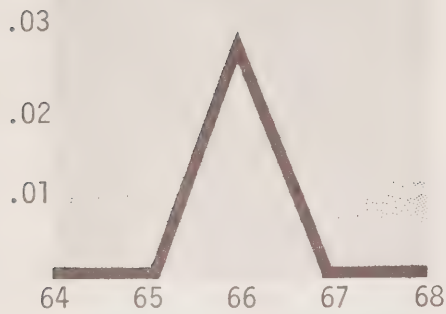
**Chart 62**

**ACCIDENTS PER  
MILLION AIRCRAFT  
MILES**



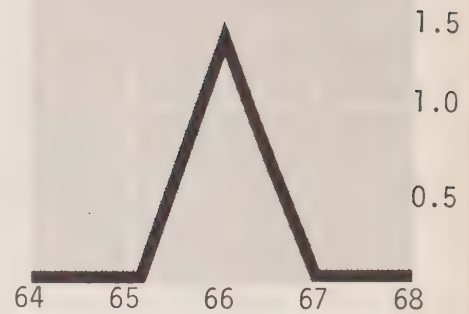
**Chart 63**

**FATAL ACCIDENTS PER  
MILLION AIRCRAFT  
MILES**



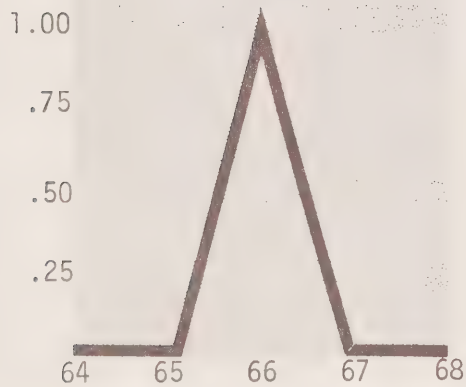
**Chart 64**

**PASSENGERS KILLED  
PER MILLION  
AIRCRAFT MILES**



**Chart 65**

**ACCIDENTS PER  
MILLION PASSENGERS  
CARRIED**



**Chart 66**

**FATAL ACCIDENTS  
PER MILLION  
PASSENGERS CARRIED**



**Chart 67**

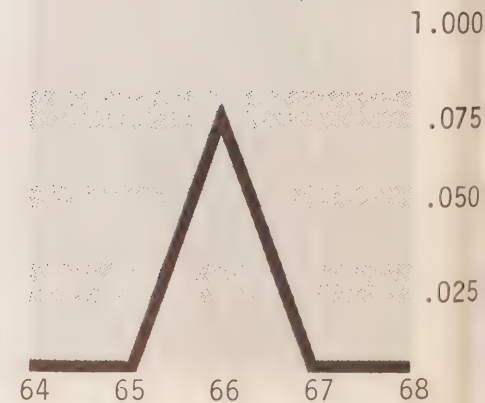
**PASSENGERS KILLED  
PER MILLION  
PASSENGERS CARRIED**



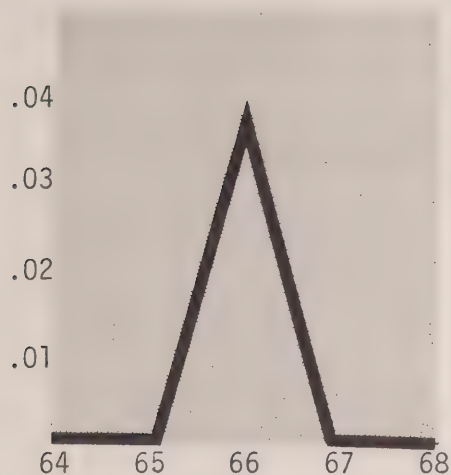
**Chart 68**

**ACCIDENTS PER  
HUNDRED MILLION  
PASSENGER MILES**

20







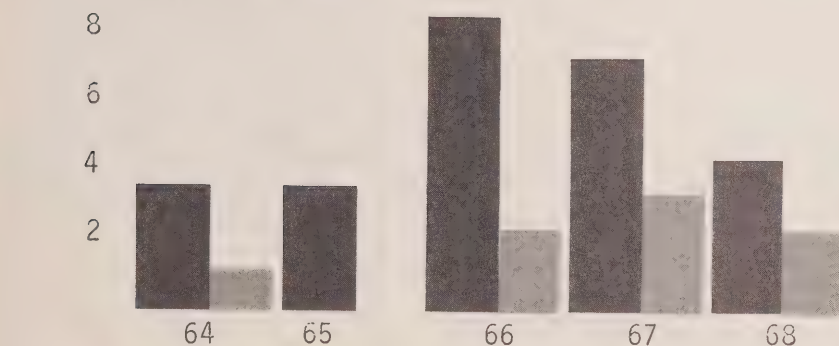
**Chart 69**  
FATAL ACCIDENTS PER  
HUNDRED MILLION  
PASSENGER MILES

**Chart 70**  
PASSENGERS KILLED  
PER HUNDRED MILLION  
PASSENGER MILES

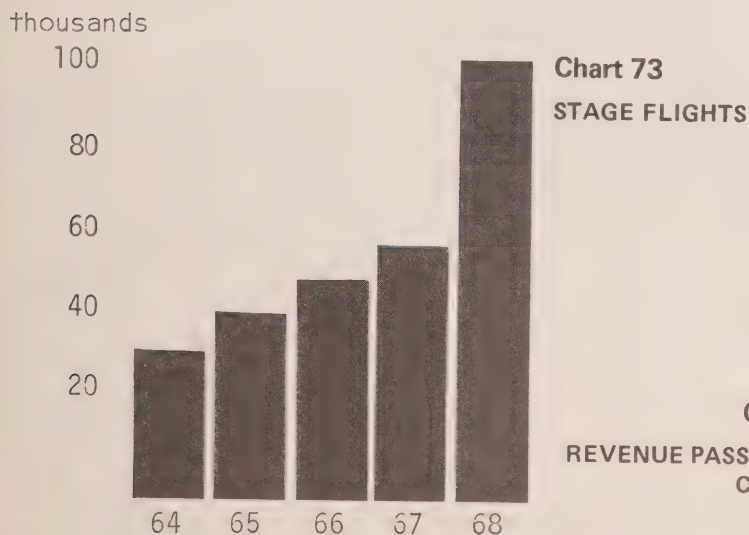
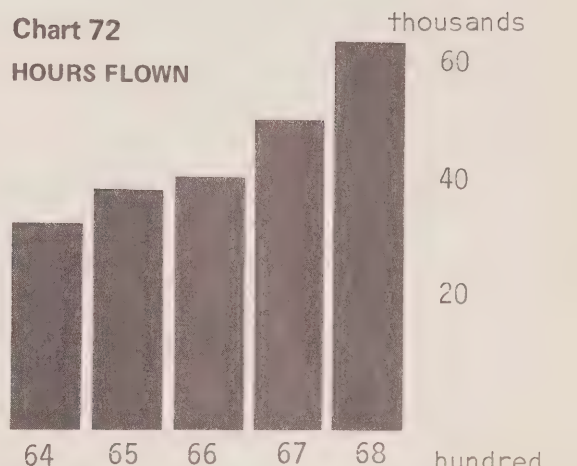


## Unit Toll - Unscheduled

**Chart 71**  
ACCIDENTS AND  
FATAL ACCIDENTS

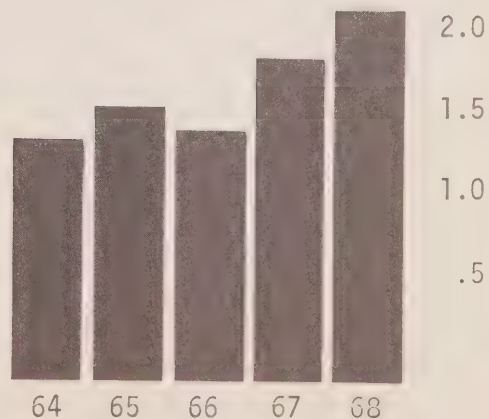


**Chart 72**  
HOURS FLOWN



**Chart 73**  
STAGE FLIGHTS

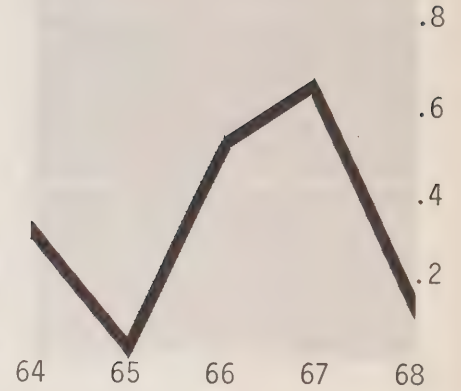
**Chart 74**  
REVENUE PASSENGERS  
CARRIED



**Chart 75**  
ACCIDENTS  
PER 10000 HOURS



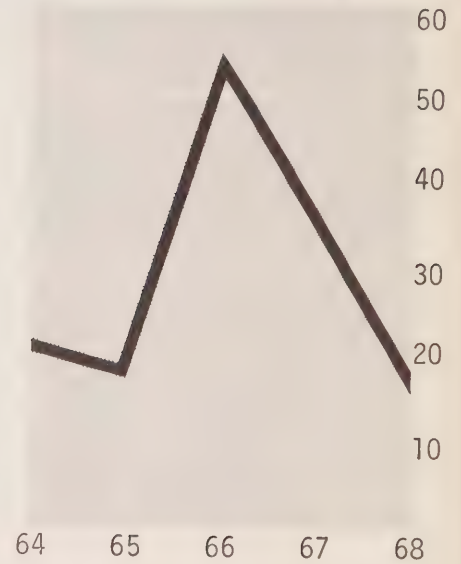
**Chart 76**  
FATAL ACCIDENTS  
PER 10000 HOURS



**Chart 77**  
PASSENGERS KILLED  
PER 10000 HOURS



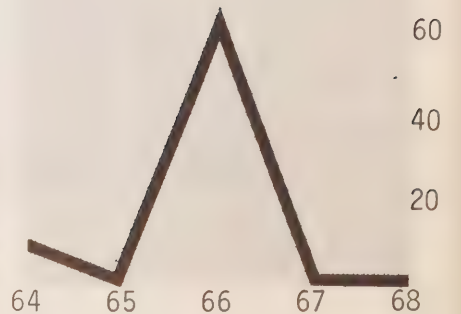
**Chart 78**  
ACCIDENTS  
PER MILLION  
PASSENGERS CARRIED



**Chart 79**  
FATAL ACCIDENTS  
PER MILLION  
PASSENGERS CARRIED

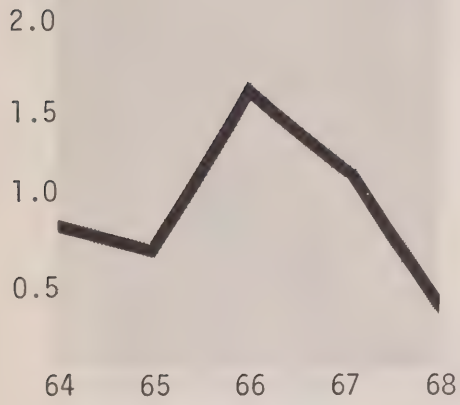


**Chart 80**  
PASSENGERS KILLED  
PER MILLION  
PASSENGERS CARRIED



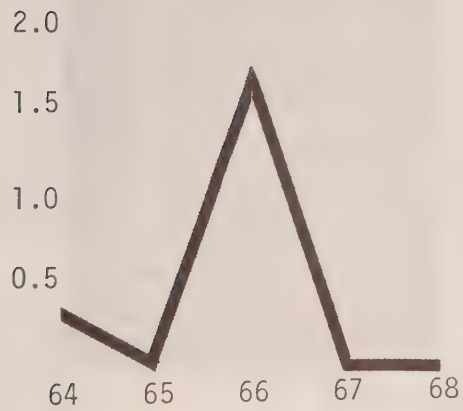
**Chart 81**

**ACCIDENTS PER  
10000 STAGE FLIGHTS**



**Chart 82**

**FATAL ACCIDENTS PER  
10000 STAGE FLIGHTS**



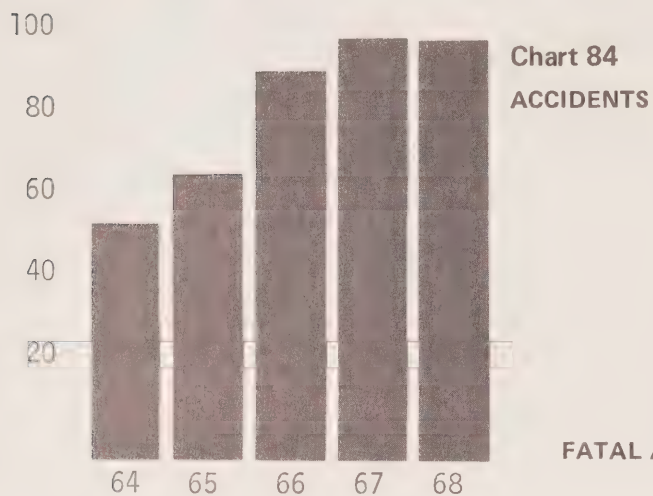
**Chart 83**

**PASSENGERS KILLED  
PER 10000 STAGE  
FLIGHTS**

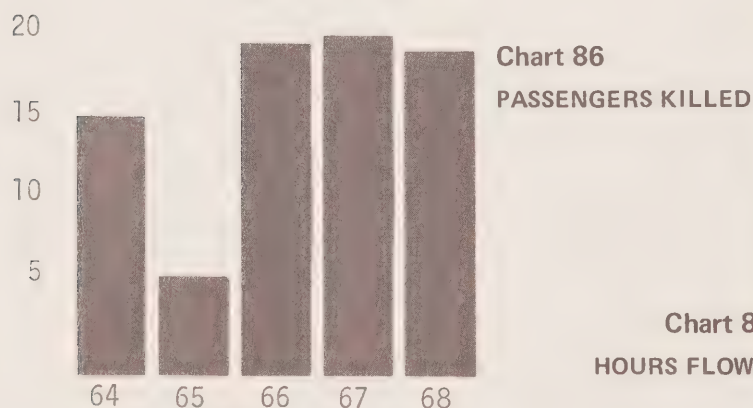
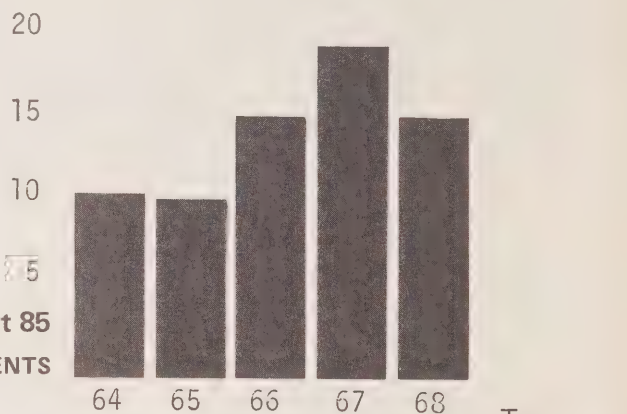
# Commercial Operations

## - Charter and Contract

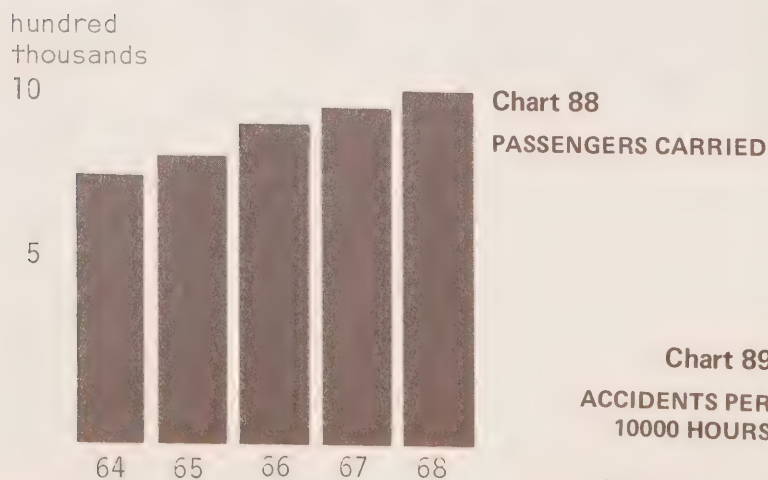
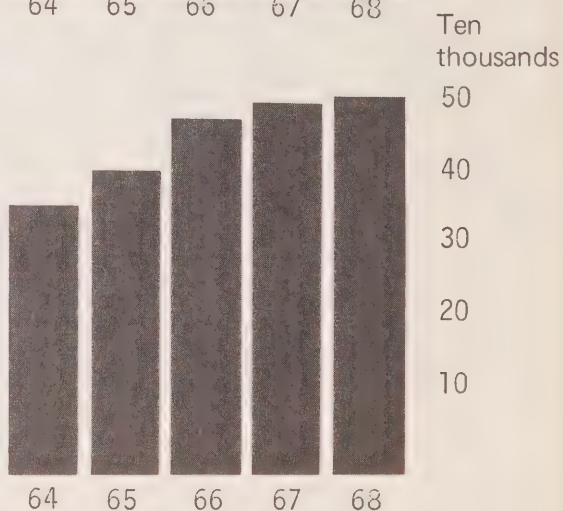
*Charter and Contract Air Carriers include all class 4A, 4B, 4C, 5 and class 9 Canadian operators providing services within and from Canada.*



**Chart 85**  
**FATAL ACCIDENTS**



**Chart 87**  
**HOURS FLOWN**

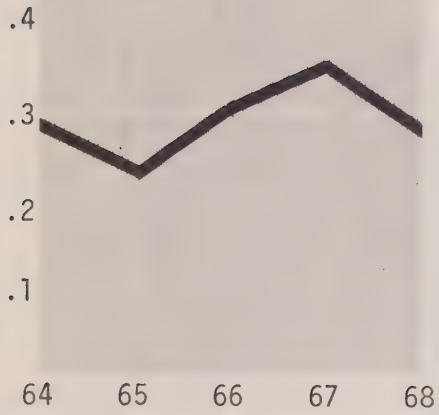


**Chart 89**  
**ACCIDENTS PER 10000 HOURS**



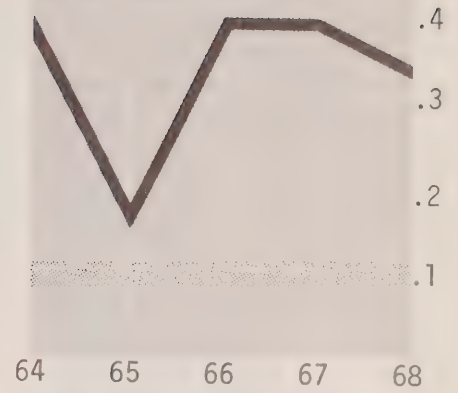


**Chart 90**  
FATAL ACCIDENTS  
PER 10000 HOURS

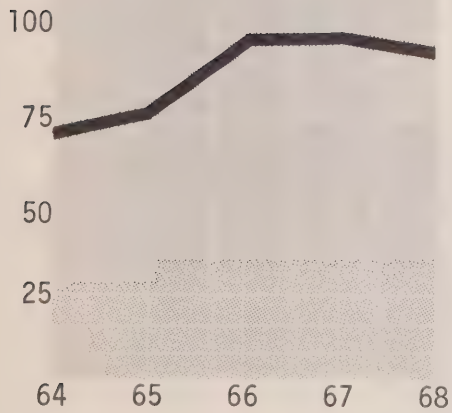


**Chart 91**

PASSENGERS KILLED  
PER 10000 HOURS

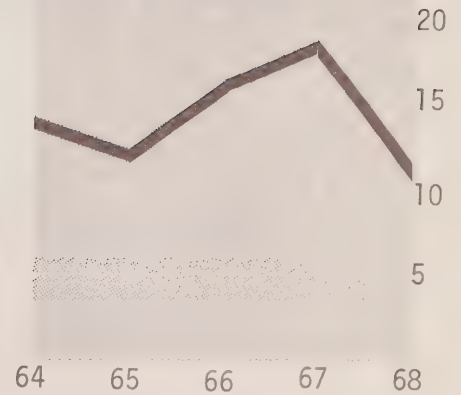


**Chart 92**  
ACCIDENTS PER  
MILLION PASSENGERS  
CARRIED

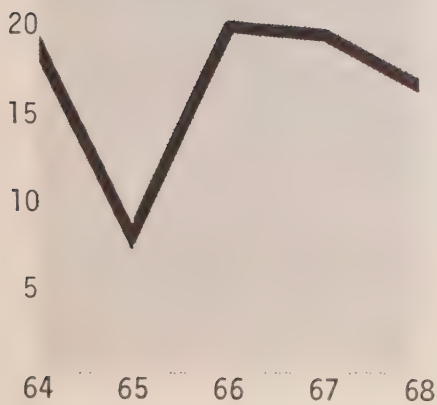


**Chart 93**

FATAL ACCIDENTS  
PER MILLION  
PASSENGERS CARRIED



**Chart 94**  
PASSENGERS KILLED  
PER MILLION  
PASSENGERS CARRIED



# Speciality Operations

*This group includes nine classes of widely differing operations. The two largest groups — recreational flying and flying training — appear in one chart; the others are combined. Separating each of the smaller classes would be of questionable value, due to the large annual fluctuations in hours flown and accidents*

20

15

10

5

64 65 66 67 68

**Chart 96**

**FATAL ACCIDENTS**

2.5

2.0

1.5

1.0

0.5

64 65 66 67 68

**Chart 95**

**ACCIDENTS**



64

65

66

67

68

80

60

40

20

hundred  
thousands  
6

5

4

3

2

1

**Chart 97**

**HOURS FLOWN**



64

65

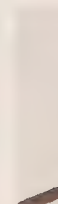
66

67

68

**Chart 98**

**ACCIDENTS  
PER 10000 HOURS**



64

65

66

67

68

.4

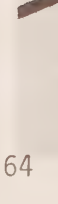
.3

.2

.1

**Chart 99**

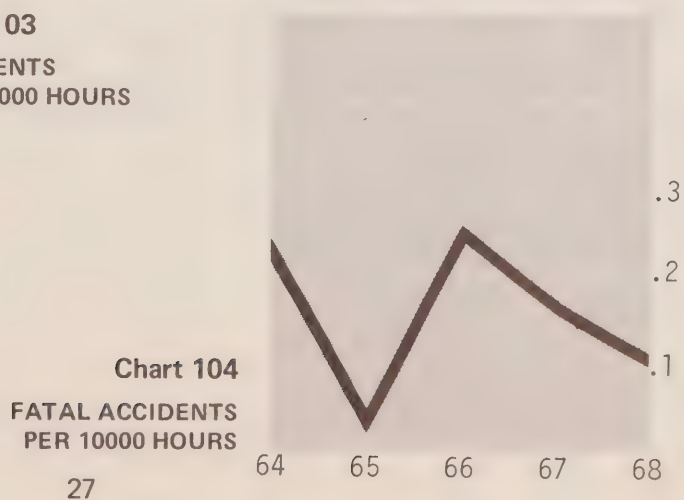
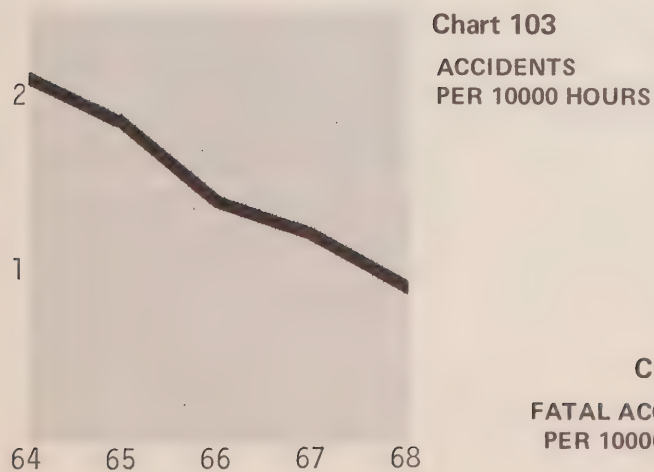
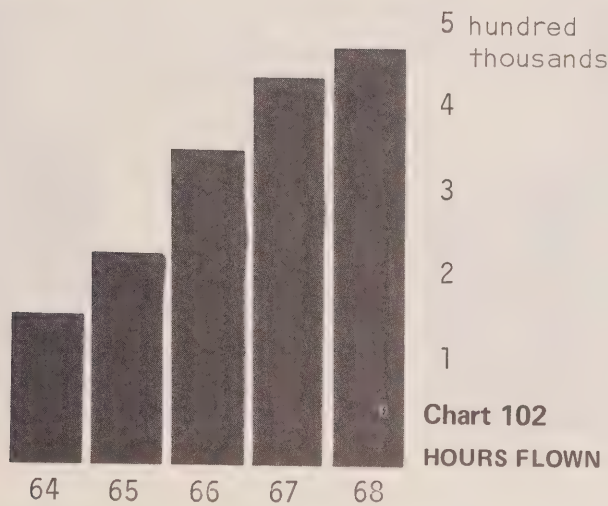
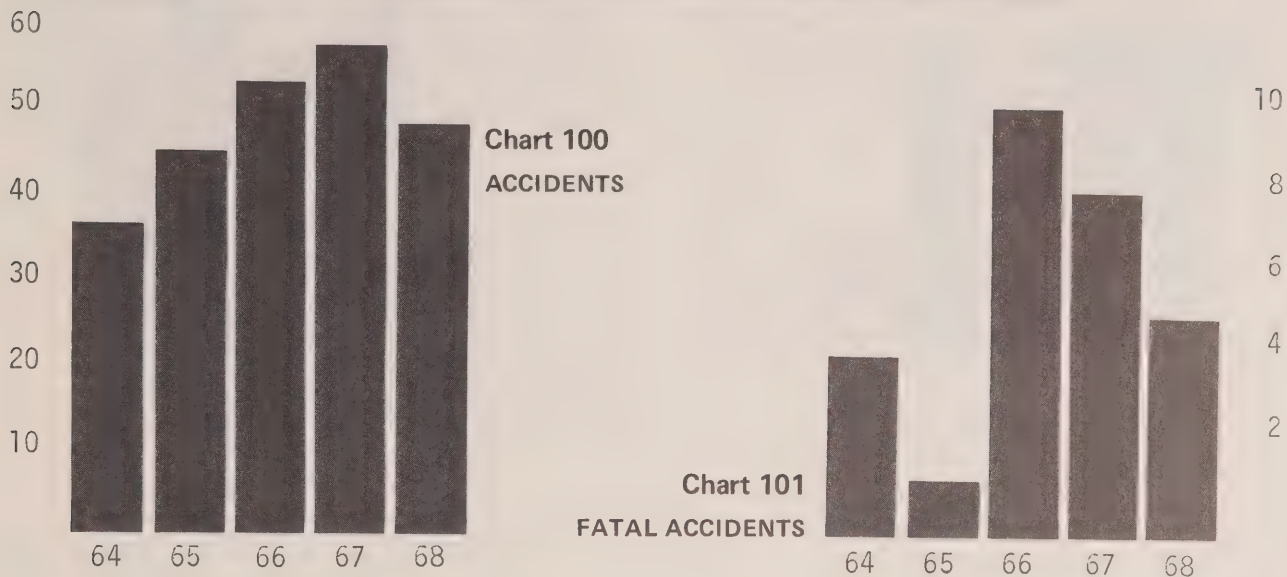
**FATAL ACCIDENTS  
PER 10000 HOURS**





# Speciality Operations

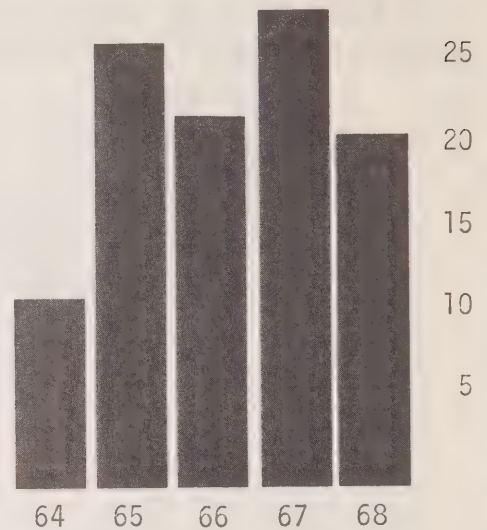
## - Training and Recreational Flying



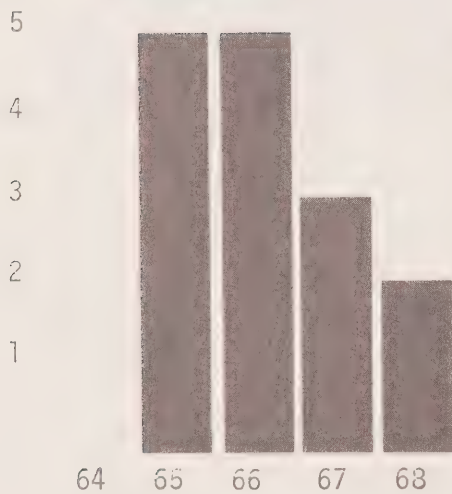
# Speciality Operations - All Others

*This category includes aerial photography, survey, aerial application and distribution, aerial inspection, reconnaissance, advertising, air ambulance, and mercy services. They have been combined since wide fluctuations can occur in the low activity classes.*

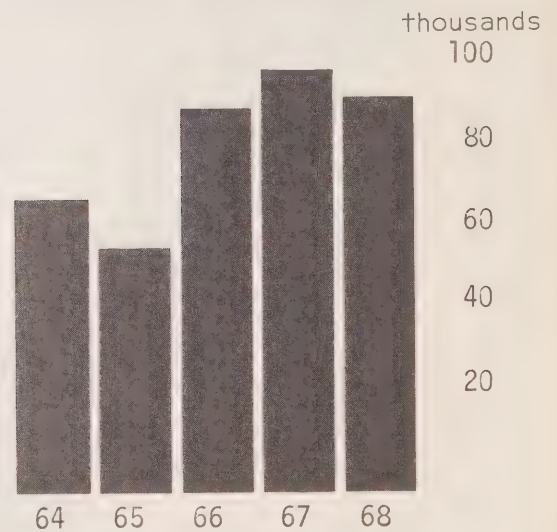
**Chart 105**  
**ACCIDENTS**



**Chart 106**  
**FATAL ACCIDENTS**



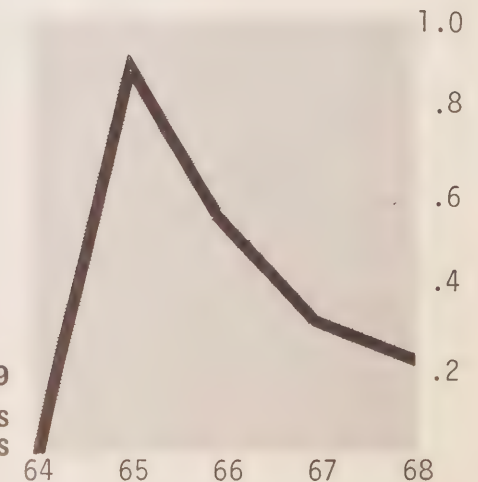
**Chart 107**  
**HOURS FLOWN**



**Chart 108**  
**ACCIDENTS PER 10000 HOURS**



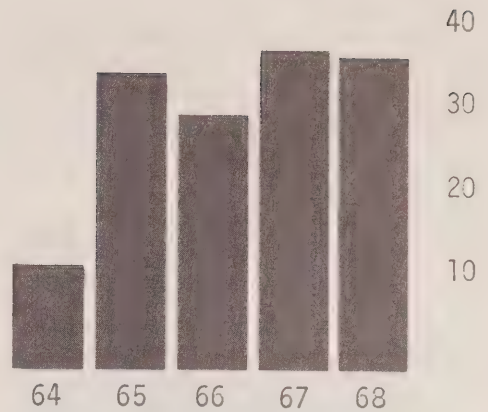
**Chart 109**  
**FATAL ACCIDENTS PER 10000 HOURS**



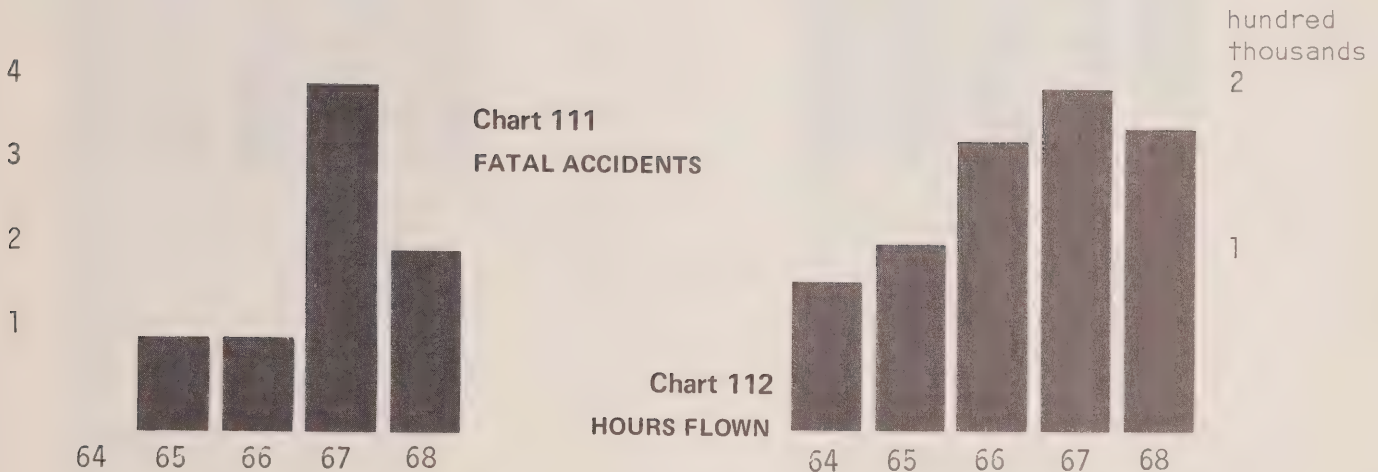
# Flying Clubs

*This class of operation is akin to the 7RF and 7FT in purpose and scope, except that the organization is non-profit and formed expressly for the benefit of its members. These operations experienced a 14.7% decrease in flying activity during 1968. The fatal accident rate also decreased; this rate is the product of only two fatal accidents.*

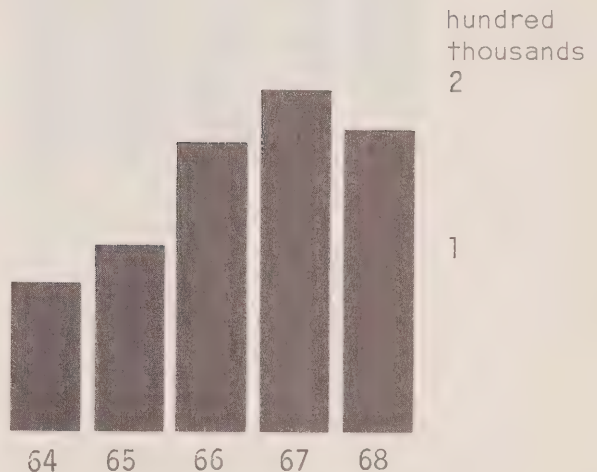
**Chart 110**  
ACCIDENTS



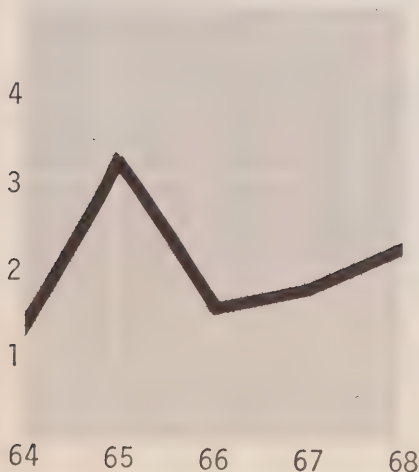
**Chart 111**  
FATAL ACCIDENTS



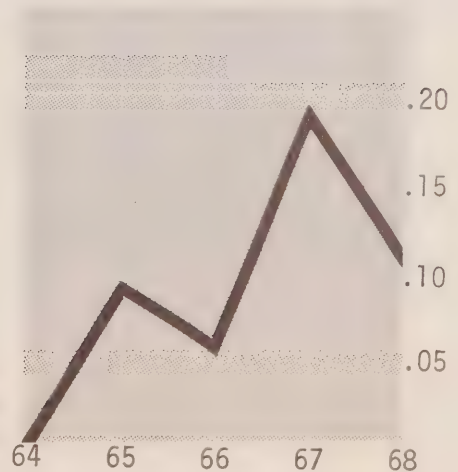
**Chart 112**  
HOURS FLOWN



**Chart 113**  
ACCIDENTS  
PER 10000 HOURS



**Chart 114**  
FATAL ACCIDENTS  
PER 10000 HOURS



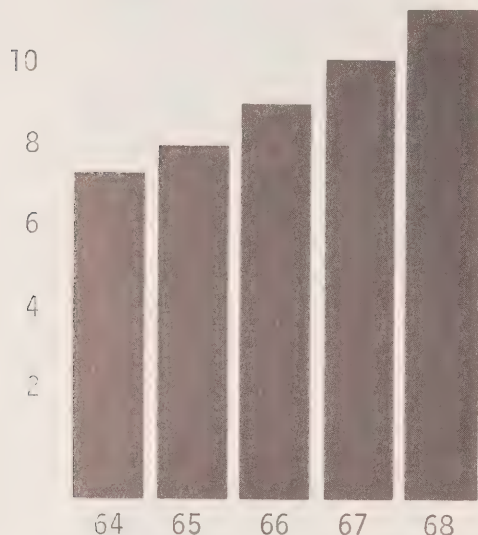


# Private Operations

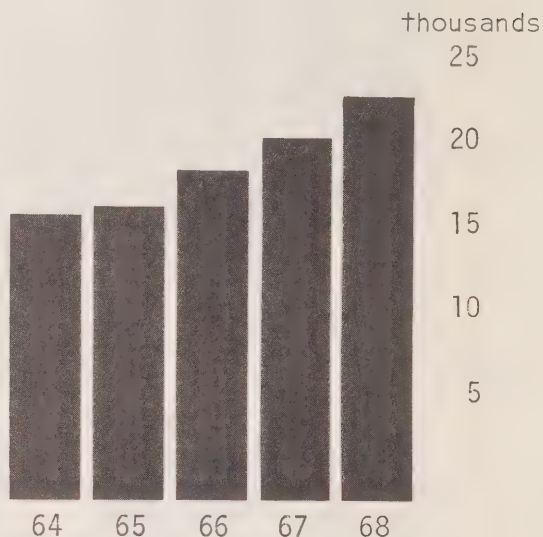
During 1968 there was a 4.9% increase in the number of private flying hours over 1967, and a 21% increase in the number of aircraft accidents.

The private flying totals for 1966 and 1967 have been revised as a result of an improvement in the data collection system. All flying time in the private category is now based on those reported on the Aircraft Condition and Conformity Inspection (CCI) reports.

12 hundreds

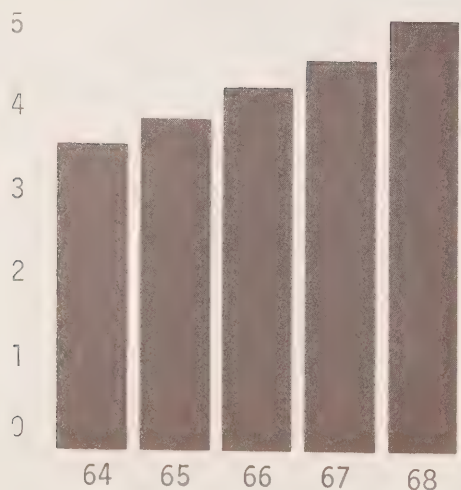


**Chart 115**  
**GLIDER PILOTS**



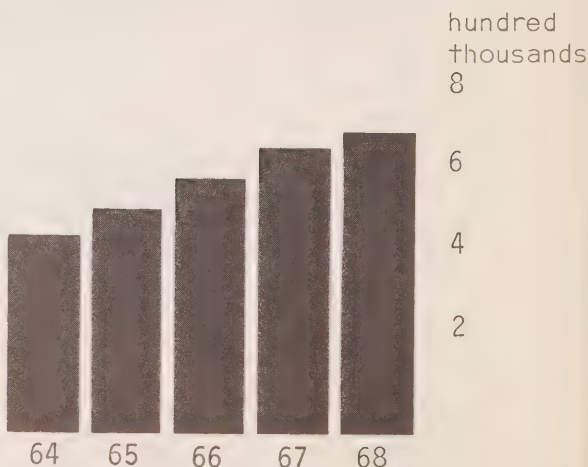
**Chart 116**  
**PRIVATE PILOTS**

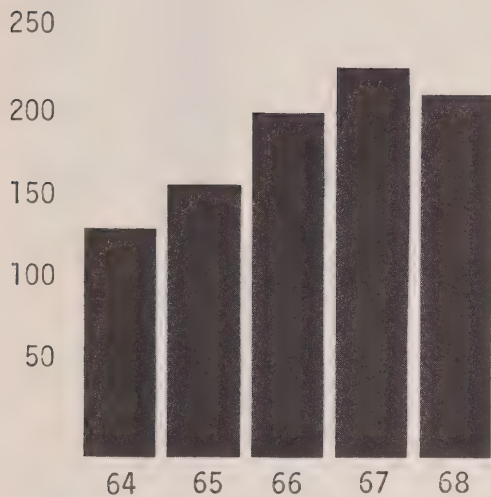
thousands



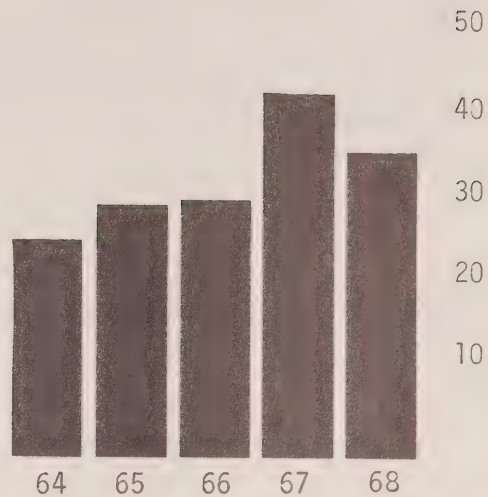
**Chart 117**  
**PRIVATE AIRCRAFT  
WITH VALID C OF A**

**Chart 118**  
**HOURS FLOWN**

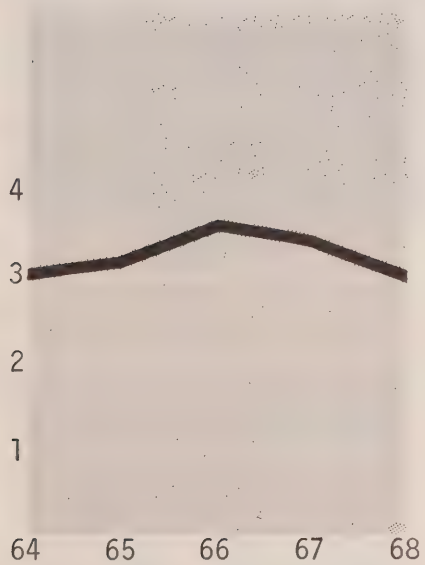




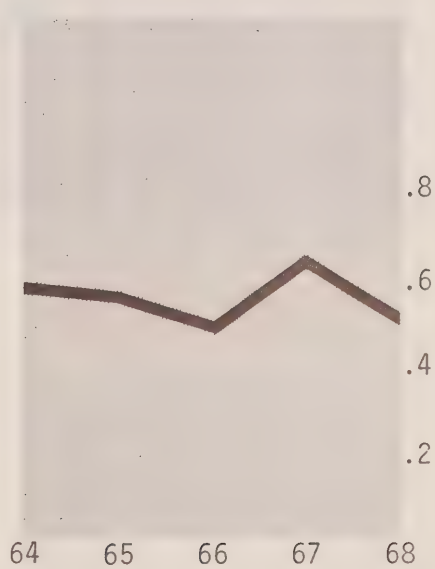
**Chart 119**  
**ACCIDENTS**



**Chart 120**  
**FATAL ACCIDENTS**



**Chart 121**  
**ACCIDENTS**  
**PER 10000 HOURS**

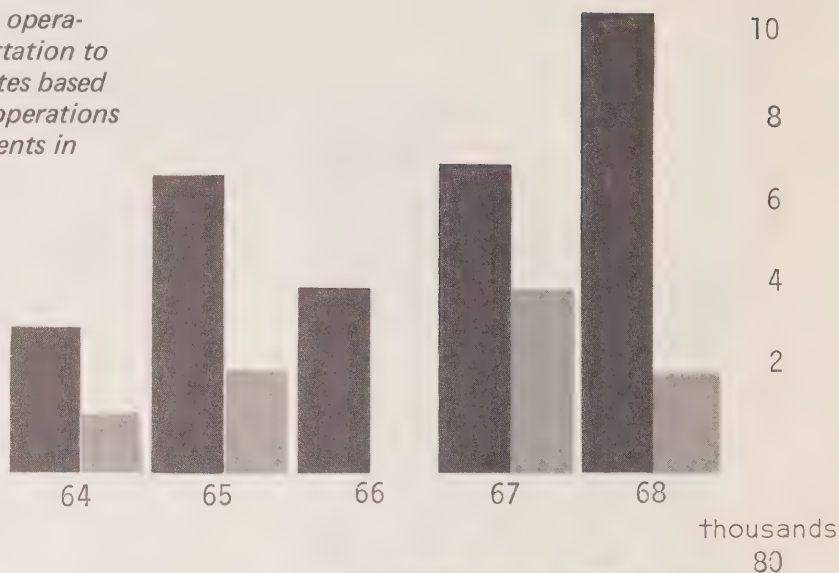


**Chart 122**  
**FATAL ACCIDENTS**  
**PER 10000 HOURS**

# State Operations

*This class includes all Federal and Provincial aircraft. These are used in the various operations ranging from executive transportation to water bombing. The hours are estimates based on the yearly utilization rates. State operations has shown a marked increase in accidents in 1968.*

**Chart 124**  
**ACCIDENTS AND**  
**FATAL ACCIDENTS**



hundreds

2.0

1.5

1.0

.5

64

65

66

67

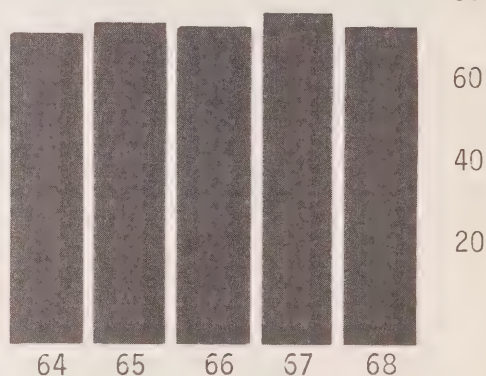
68

**Chart 123**

**STATE AIRCRAFT**  
**WITH VALID C OF A**

**Chart 125**

**HOURS FLOWN**



thousands

80

60

40

20

64

65

66

67

68

1.5

1.25

1.0

.75

.5

.25

64

65

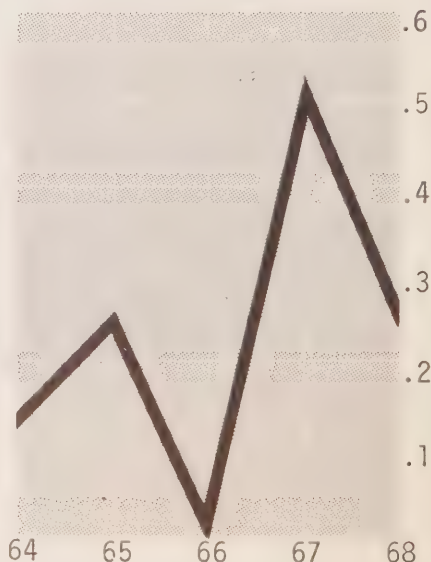
66

67

68

**Chart 126**

**ACCIDENTS PER**  
**10000 HOURS**



**Chart 127**

**FATAL ACCIDENTS**  
**PER 10000 HOURS**

64

65

66

67

68



# Helicopter Accidents

	COM-MERCIAL	STATE	PRIVATE
1960	26	1	1
1961	27	1	2
1962	34	—	5
1963	33	—	3
1964	31	3	—
1965	41	2	9
1966	52	1	9
1967	54	3	4
1968	57	6	3

Chart 128

ACCIDENTS BY TYPE OF REGISTRATION

Chart 131

ACCIDENTS BY AIRCRAFT TYPE

	1964	1965	1966	1967	1968
<i>Bell 47 series</i>	26	29	39	32	33
<i>Bell 204</i>			2		2
<i>Bell 205</i>					
<i>Bell 206</i>				5	4
<i>Hiller UH12 series</i>	2	13	9	9	3
<i>Hiller FH-1100</i>				4	5
<i>Brantly series</i>	1	1	1		1
<i>Hughes series</i>		4	4	3	5
<i>Sikorski S51</i>					
<i>Sikorsky S55</i>	3	3	5	4	4
<i>Sikorsky S58</i>	1	1			1
<i>Sikorsky S61</i>					
<i>Sikorsky S62</i>		1			1
<i>Vertol 42A</i>	1		1		
<i>Vertol 44B</i>					
<i>Alouette series</i>			1	4	7

Chart 129

ACCIDENT RATES PER 10000 HOURS (Commercial operations)

1962	4.98
1963	4.48
1964	3.44
1965	3.44
1966	3.56
1967	3.29
1968	2.9

Chart 130

ACCIDENT/POPULATION DATA

	1964	1965	1966	1967	1968
<i>Helicopter population</i>	316	354	390	435	453
<i>Number of accidents</i>	34	52	62	61	66
<i>Percentage of helicopter population involved in accidents</i>	10.7	14.6	15.8	14.0	14.5

	1964	1965	1966	1967	1968
<i>Helicopter accidents</i>	34	52	62	61	66
<i>Accidents to all aircraft of Canadian Registry</i>	268	348	422	472	460
<i>Percentage of total accidents which occurred to helicopters</i>	12.6	14.9	14.6	12.9	14.3
<i>Helicopter population (on aircraft register)</i>	316	354	390	435	453
<i>Fixed-wing population</i>	6605	7166	7888	8671	9439
<i>Fixed-wing accidents</i>	232	293	354	409	387
<i>Percentage of helicopter population involved in accidents</i>	10.7	14.6	15.8	14.0	14.5
<i>Percentage of fixed-wing aircraft involved in accidents</i>	3.5	4.0	4.4	4.7	4.1
<i>Fatal helicopter accidents</i>	2	4	6	6	6
<i>Fatal fixed-wing accidents</i>	42	43	58	76	63
<i>Percentage of helicopter accidents which are fatal</i>	5.8	7.6	9.6	9.8	9.0
<i>Percentage of fixed-wing accidents which are fatal</i>	18.1	14.6	16.3	18.4	16.2

Chart 132

HELICOPTER/FIXED  
WING COMPARISON  
DATA

# Gyrocopter Accidents

*There has been a steady increase in gyrocopter activity and an increase in gyrocopter accidents. The number of gyrocopter accidents is low but the fatal accident rate is extremely high; 42.8% since 1963, when the gyrocopter was introduced into Canada. Most accidents involved loss of control by inexperienced pilots.*

	1963	1964	1965	1966	1967	1968	Chart 133 ACCIDENTS AND FATAL ACCIDENTS
<i>Gyrocopter population</i>	5	9	14	26	46	73	
<i>Gyrocopter accidents</i>	1	2	2	3	2	4	
<i>Percent involved in accidents</i>	20	22.2	14.3	11.5	4.3	5.5	
<i>Fatal accidents</i>	0	1	1	0	2	2	
<i>Percent of accidents fatal</i>	0	50	50	0	100	50	

	Fatal	Serious	Minor	Nil	Chart 134 CASUALTIES BY TYPE OF ACCIDENT
<i>Heavy landing</i>			2	2	
<i>Heavy landing following propeller failure</i>				1	
<i>Heavy landing following engine failure</i>	1			2	
<i>Loss of control and/or aerial disintegration</i>	5		1		

	Fatal	Serious	Minor	Nil	Chart 135 INJURIES BY CAUSE OF ACCIDENT
<i>Personnel</i>	5		3	2	
<i>Material</i>	1			3	





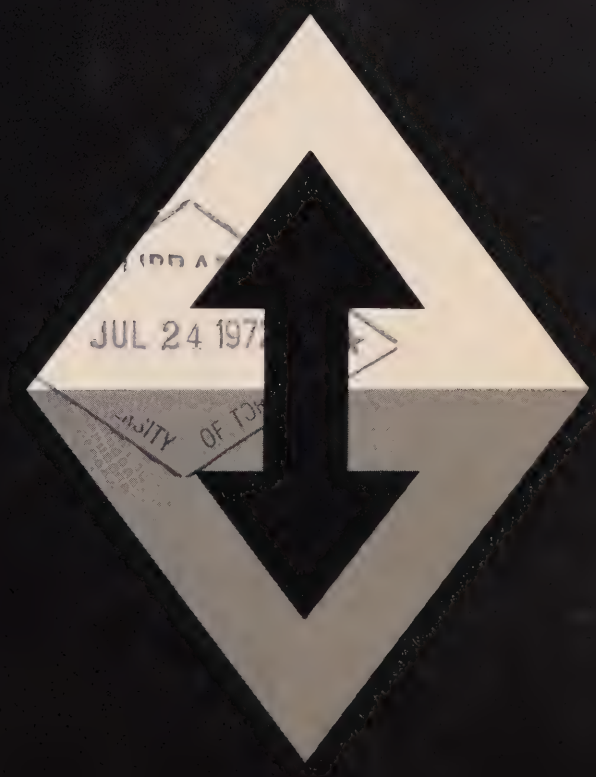


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OTTAWA, 1971  
Catalogue No. T52-4368

AIT 23

A31

# AIRCRAFT ACCIDENTS CANADA 1969











CAL T 23-04

AIRCRAFT  
ACCIDENTS  
CANADA

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1969

A  
Statistical  
Summary

Aircraft Accident Investigation Division  
Ministry of Transport  
Ottawa Canada

©  
Information Canada  
Ottawa, 1972  
Catalogue No T52-4369

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## THE 1969 PICTURE

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The intent of this accident survey is to provide statistical information for the use of persons and organizations having a direct interest in Canadian aviation. For example, an operator will be able to assess his accident record against the record of all similar operators and he will be able to see the extent to which his group contributed to the total aircraft accident picture. Hopefully, the content of this document will stimulate a constructive interest in aviation safety and give aircraft operators some indication of the relative safety of their own operations.

The format of this document has been changed slightly from that of previous years. Many of the graphs have been deleted as they were considered redundant. However, where graphs have been removed the related information has been displayed by charts which contain raw data material.

The aircraft activity data for this publication were provided by the Aviation Statistics Centre, Dominion Bureau of Statistics, the Air Transport Committee, the Canadian Transportation Commission and the Civil Aviation Branch, Ministry of Transport.

## GLOSSARY OF TERMS

### ACCIDENT

an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, in which:

- any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or
- the aircraft receives substantial damage, is destroyed or missing.

### AIR CARRIERS

Charter

Air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft

Contract

Air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.

International Schedule

Carriers designated by the Government to operate international scheduled air services between Canada and any other State, pursuant to an international agreement or agreements to which Canada is a party.

Irregular Specific Point

air carriers who offer public transportation of persons, mails and/or goods by aircraft, from a designated base, serving a defined area or a specific point or points, at a toll per unit.

Regular Specific Point

air carriers who offer transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.

Scheduled

air carriers who offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit.

### AIRCRAFT

any machine that can derive support in the atmosphere from reaction of the air.

### POSITIONING

a non-revenue flight for operational reasons

### SERIOUS INJURY

an injury requiring treatment, and results in suspension of normal activity for five or more days and includes

- unconsciousness
- bone fracture except simple fracture of finger or toe
- lacerations of muscles or those which cause severe hemorrhage
- injury to an internal organ
- second or third degree burns or burns on more than 5% of the body.

### SPECIALTY OPERATIONS

recreational flying, flying training, aerial photography, aerial photography and survey, aerial application and distribution, aerial inspection, reconnaissance and advertising, aerial control, aerial construction.

### UNIT TOLL

public transportation of passengers and goods at a toll per unit



# **SUMMARY OF ACCIDENTS (by type of operation)**

<b>FIXED WING DEC. 31, 1969</b>	<b>TOTAL ACCIDS</b>	<b>FATAL ACCIDS</b>
<b>DOMESTIC SCHEDULED</b>	3	2
<b>DOMESTIC UNSCHEDULED</b>		
Regular Specific Flights	1	1
Irregular Specific Flights	5	
Chartered Group A	4	2
Chartered Group B	59	9
Chartered Group C	2	
<b>FLYING CLUB</b>		
Flying Training	1	
Recreational Flying	22	5
<b>SPECIALTY</b>		
Flying Training	29	2
Recreational Flying	31	5
AP and Survey	1	
AA and Distribution	7	
Aerial Control	5	2
Other	1	
<b>PRIVATE</b>		
Ferry	9	
Company Business	47	3
Test	3	
Training Check	13	
Recreational Flying	164	14
Aerial Pest Control	1	1
Other	6	2
<b>MISCELLANEOUS</b>		
Positioning	5	2
Ferry	1	
State	2	
Contract	1	
<b>TOTALS</b>	423	50

The charts on the following four pages depict summaries of accidents and casualties that occurred during 1969. The first relates to fixed wing aircraft operations and the second to rotary wing.

PILOT		OTHER CREW		TOTAL CREW		PASSENGERS		TOTALS	
K	SI	K	SI	K	SI	K	SI	K	SI
1		1		2		2		4	
1				1				1	
2		2		4		6		10	
7	7			7	7	22	5	29	12
	4			4		7	1	11	1
2	1			2	1			2	1
5	4			5	4	5	2	10	6
	2				2				2
2	1	2		2	3	1		2	4
	2				2		2		4
3	4	1		4	4		2	4	6
					3				3
	3								
4	14	1		15	14	14	13	29	27
1				1				1	
2	1	2	1	4	2		1	4	3
				2		2		4	
	1				1				1
4	40	7	3	53	43	58	27	111	70

# **SUMMARY OF CASUALTIES (by type of operation)**

**ROTARY WING  
AIRCRAFT  
DEC. 31, 1969**

**TOTAL  
ACCIDS**

**FATAL  
ACCIDS**

## **DOMESTIC UNSCHEDULED**

Charter Group B

3

1

Charter Group C

53

8

## **SPECIALTY**

Flying Training

1

Aerial Photography

4

AP and Survey

5

AA and Distribution

3

AIR and Advertising

5

## **PRIVATE**

Ferry

1

1

Training - Check

2

1

Recreational Flying

1

1

Aerial Pest Control

1

## **MISCELLANEOUS**

Positioning

State

1

## **TOTALS**

80

12

**ACCIDS    ACCIDENTS**  
**K           KILLED**  
**SI          SERIOUSLY INJURED**

DATA INCLUDES 6 GYROCOPTER  
ACCIDENTS



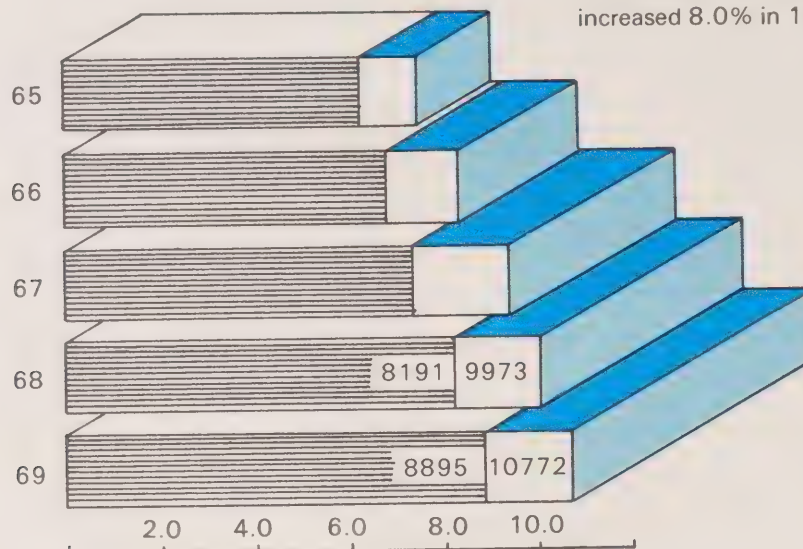


## AIRCRAFT INFORMATION

Number of Canadian Registered Aircraft; with valid C of A



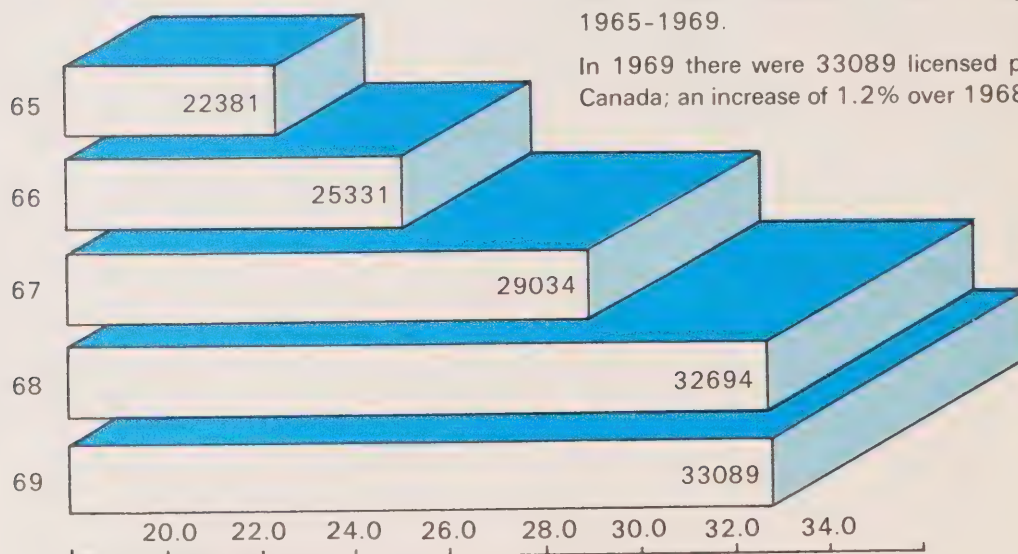
The number of registered aircraft in Canada increased 8.0% in 1969 over 1968 total.



## PILOT INFORMATION

No. Of Pilot's Licenses in force During years 1965-1969.

In 1969 there were 33089 licensed pilots in Canada; an increase of 1.2% over 1968.




### Percentage Of Pilot's Licenses By Type

Private	23,756	71.89%
Commercial	4,631	14.0%
Airline Transport	2,664	8.0%
Glider	1,342	4.1%
Senior Commercial	696	2.1%
TOTAL	33,089	100.0%

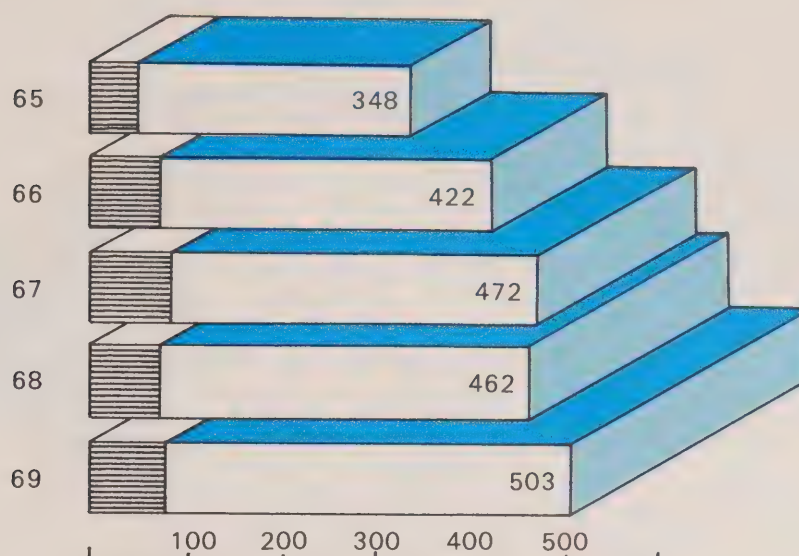


## TOTAL NUMBER OF ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT

1965-1969

Those fatal 

In 1969 the number of accidents increased by 8.9% over 1968.



### CASUALTY CHART

	65	66	67	68	69
No. of Fatalities	130	171	157	121	140
No. Seriously injured	67	74	73	64	84
Total Casualties	197	245	235	185	224

There was a fatal accident for every 7.6 accidents in 1969 whereas in 1968 the ratio was 1:69.

The total flying activity in 1969 was down by .17% over the previous year and during the first six months the total number of accidents was below that of 1968. During July this situation changed and the 1969 accident figure rose to 2.4% above that of the same period during the previous year. At the end of 1969 the accident total rose 8.5% above that of 1968.

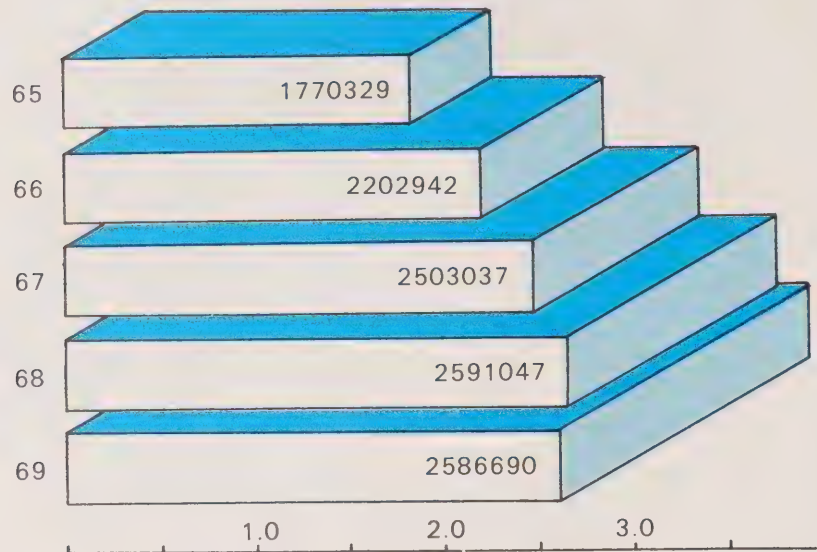
It was in the specialty class that the accident rate per 10,000 hrs rose dramatically; conversely, the state operators recorded a small gain in activity but the accident rate per 10,000 hrs was down by 73%.

The total fatal accident rate was 14% above that of the preceding year.

## ACCIDENT INFORMATION

### Million Flying Hours

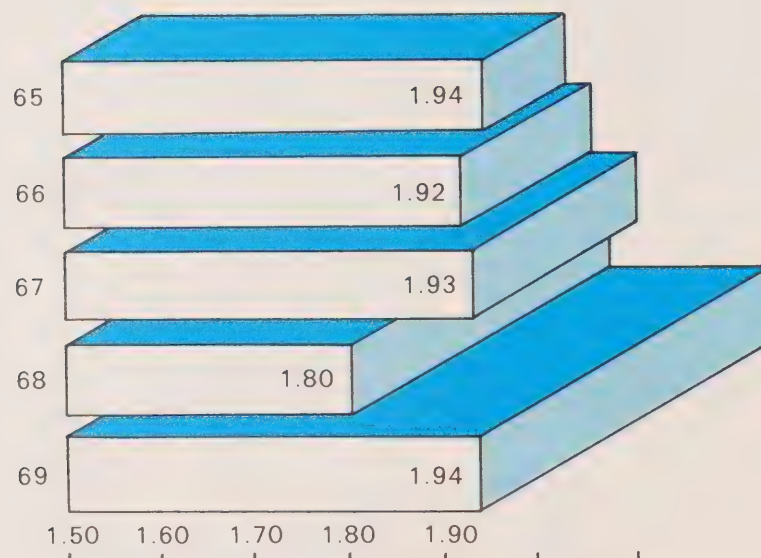
Although the aircraft activity decreased in 1969 by approximately 4357 hours, the number of accidents increased and the rate/10,000 hours showed a sharp rise over 1968.



### Accident Rate/10,000 Hours

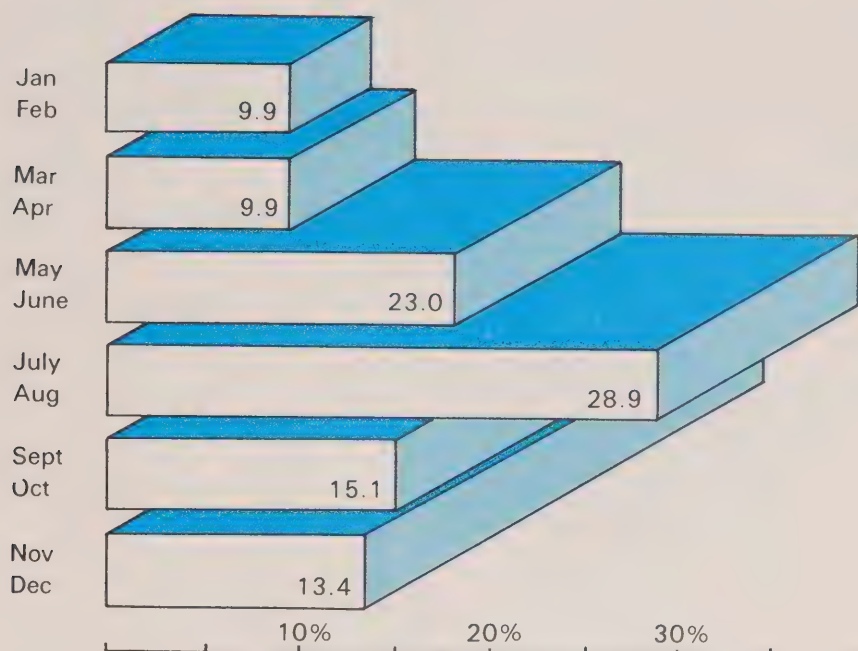
#### Foreign Aircraft Accidents in Canada.

1965	28
1966	39
1967	41
1968	30
1969	40



## SEASONAL ACCIDENT SUMMARY

Percentage of total accidents by time of year



Number of Accidents By Month Of Occurrence		1968	1969
Jan			
Feb		60	49
Mar			
Apr		70	52
May			
June		103	120
July			
Aug		112	151
Sept			
Oct		78	79
Nov			
Dec		49	70
		462	521

There were fewer accidents during Jan.-Apr. 1969 than in 1968. However during the summer months the accident rate rose to above that of 1968 and continued in that trend until the end of the year.

# ACCIDENT RATE BY TYPE OF OPERATION

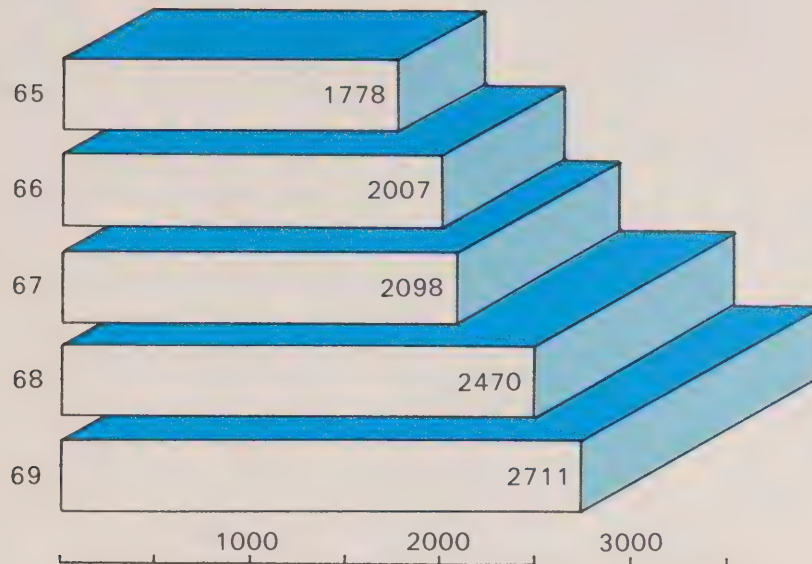
Operation	No. of Accid.	No. of Hours	Accid/ 10,000 hrs
Private	247	700,000	3.53
Specialty Others	31	103,164	3.00
Non-Scheduled Charter Contract	122	598,150	2.04
Non Scheduled Other	6	80,376	0.75
Flying Clubs	23	142,037	1.62
Specialty Rf & Ft	61	422,816	1.44
State	3	75,000	0.40
Scheduled	3.	408,659	0.07



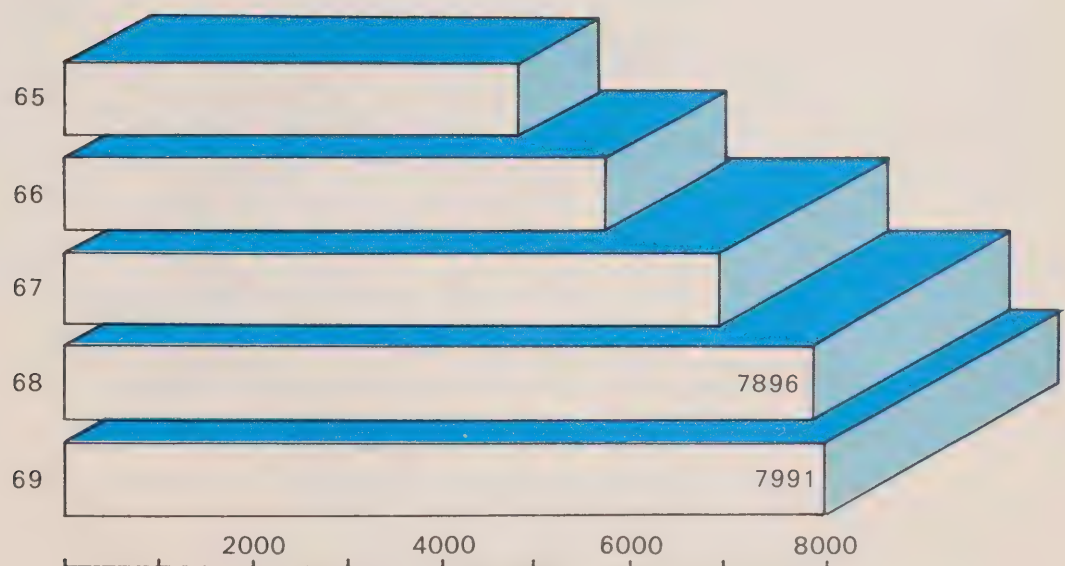
## COMMERCIAL OPERATIONS

### Number Of Commercial Aircraft (With Valid C of A)

There was an increase of 9.8% in the number of Commercial aircraft with valid Certificate of Airworthiness and an increase of 1.2% in the number of pilot licenses.



Total number of Commercial, Senior Commercial and Airline Transport Pilot Licenses.



Note accurate figures not available.

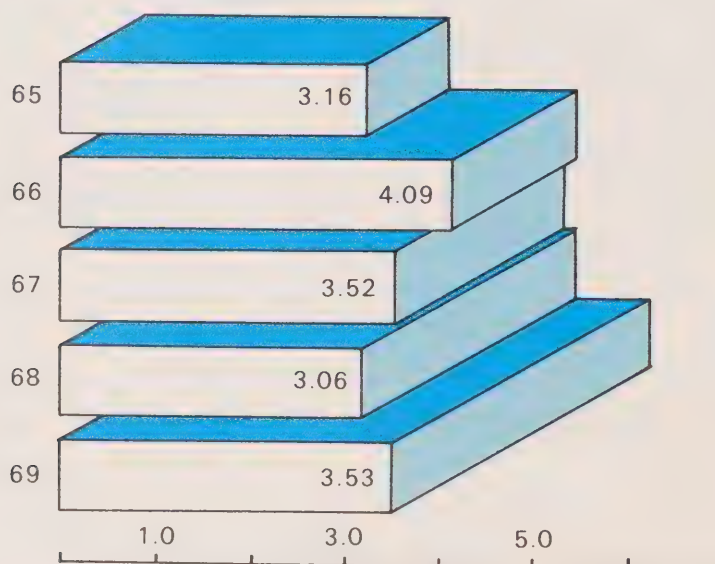


## PRIVATE OPERATIONS

	65	66	67	68	69
TOTAL ACCID.	159	239	231	214	247
Fatal Accidents	29	30	43	33	25
% of Total Accidents for year	45.69	56.64	48.94	45.82	49.11
Total Hours Flown	502,922	584,886	656,054	698,201	700,000
% of the Total For Year	28.09	26.55	26.21	26.95	27.06
Accids/10,000 hrs	3.16	4.09	3.52	3.06	3.53
No. of Private Pilot's Licences	16,831	18,710	21,089	23,621	23,756
No. of Glider Pilots	823	917	1026	1175	1324
Accident Rate/10,000 Hours					

### Accident Rate/10,000 Hrs.

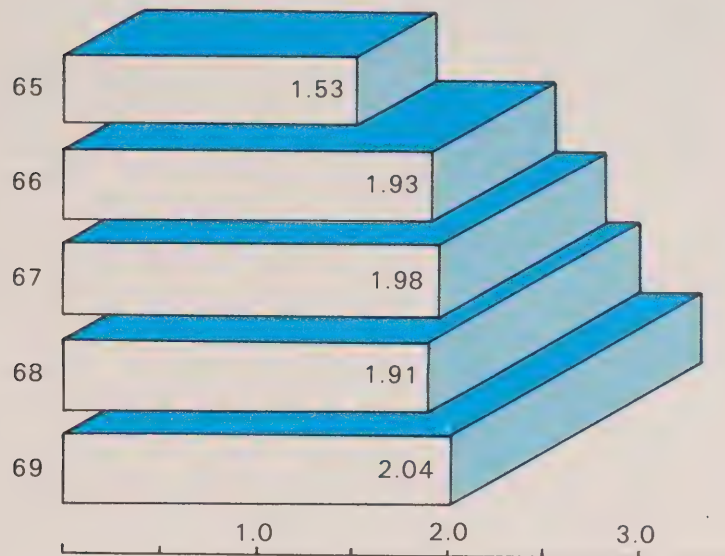
The number of accidents and the rate increased 15% although the activity gained only .25%.



## NON-SCHEDULED: CHARTER & CONTRACT

### Accident Rate/10,000 Hours

During 1969 the Charter & Contract activity rose 13% and the accident rate increased 6.8%.



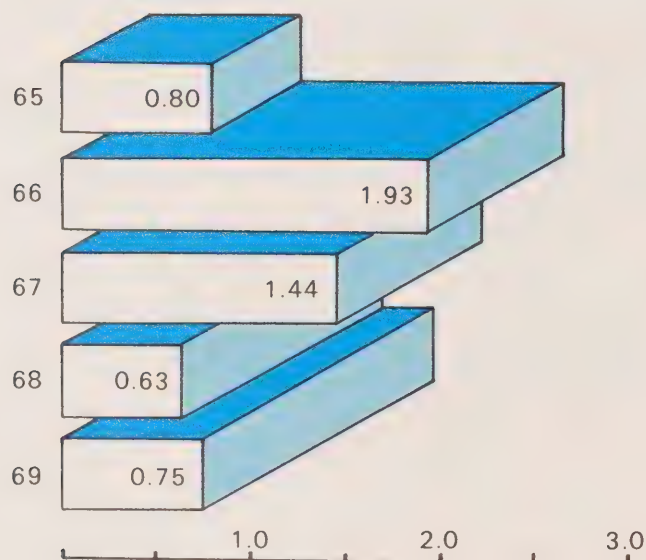
	65	66	67	68	69
Total Accidents	66	93	101	101	122
Fatal Accidents	10	15	14	14	20
% of Total Accidents for year	18.97	22.04	21.40	21.81	24.25
Total No. of Hours Flown	431,269	481,722	509,978	527,572	598,150
% of total for year	24.09	21.87	20.37	20.36	23.12
Accidents/10,000 hours	1.53	1.93	1.98	1.91	2.04

# **NON-SCHEDULED: OTHER**

	65	66	67	68	69
Total Accidents	3	8	7	4	6
Fatal Accidents		2	3	1	1
% of total Accidents for year	0.86	1.90	1.48	0.86	1.19
Total No of Hours Flown	37,481	41,414	48,552	63,014	80,376
% of total for year	2.09	1.88	1.99	2.43	3.11
Accidents/10,000 hours	0.80	1.93	1.44	0.63	0.75

## **Accident Rate/10,000 Hours**

The activity increased by 28%; the accident rate increased 19% over 1968

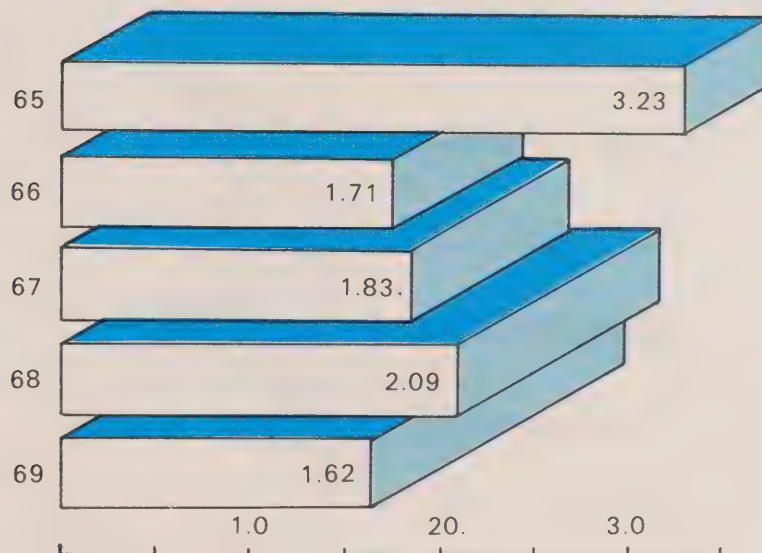


# FLYING CLUBS: RECREATION & TRAINING

	65	66	67	68	69
Total Acc'd.	34	29	37	36	23
Fatal Accidents	1	1	4	2	5
% of Total Accid's for year	9.77	6.87	7.84	7.11	4.57
Total Hours Flown	105,380	169,857	202,173	172,374	142,039
% of the Total for Year	5.89	7.71	8.08	6.65	5.49
Accidt's/10,000 hours	3.23	1.71	1.83	2.09	1.62

## Accident Rate/10,000 Hours

The activity in this class decreased 18%. The number of accidents decreased 36% and the rate/10,000 hours was 22.4% less than 1968.

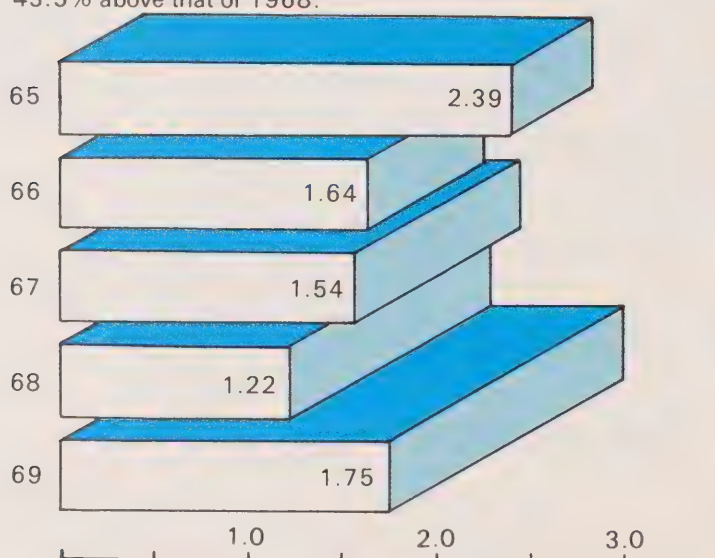


## TOTAL SPECIALTY

	65	66	67	68	69
Total Accid.	71	75	85	70	92
Fatal Accids.	6	15	11	7	9
% of Total Accids. for year	20.40	17.77	18.00	14.99	18.29
Total Hours Flown	296,688	456,511	550,494	574,006	525,980
% of Total for Year	16.57%	20.72%	21.99%	22.15%	20.33%
Accidents/10,000 hours	2.39	1.64	1.54	1.22	1.75

### Accident Rate/10,000 Hours

Although the activity was the lowest recorded in 3 years and 8% below the 1968 value the number of accidents increased sharply; there was an attendant rise in the accident rate to 43.5% above that of 1968.

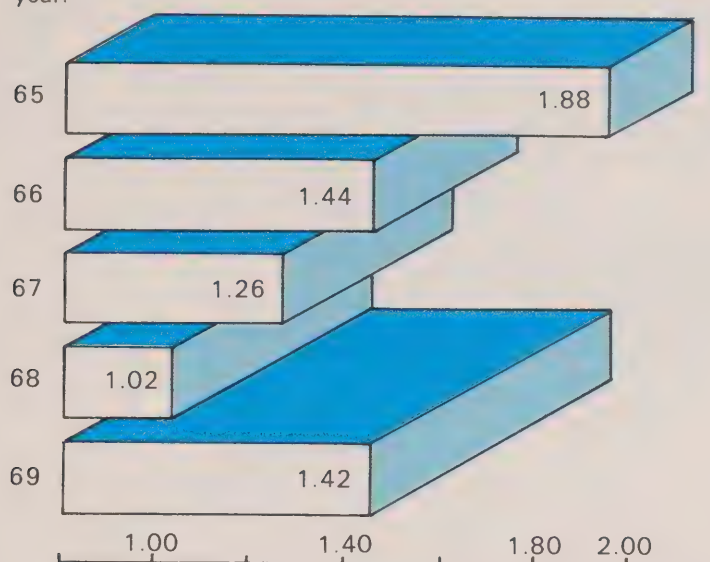




## SPECIALTY: TRAINING AND RECREATION

### Accident Rate/10,000 Hours

Again the activity was the lowest in 3 years and was 12% less than 1968; however, the number of accidents increased and produced an accident rate 41.1% over the previous year.



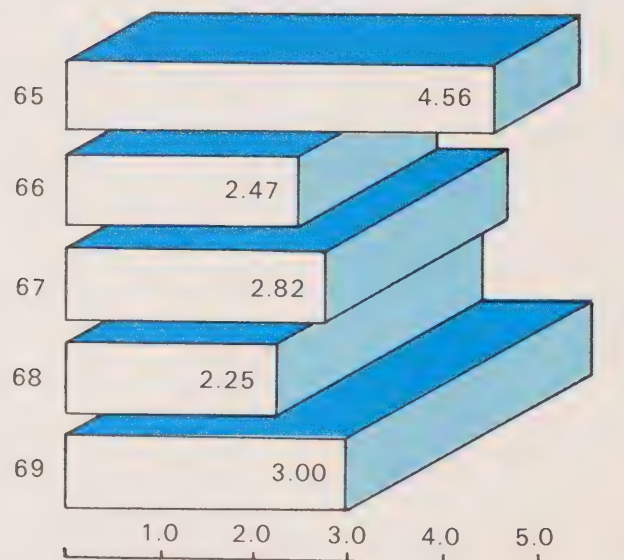
	65	66	67	68	69
Total Accid.	45	53	57	49	61
Fatal Accidents	1	10	8	5	7
% of Total Accid's for year	12.93	12.56	12.08	10.58	12.13
Total Hours Flown	239,721	367,275	451,126	480,499	422,816
% of total for year	13.39	16.67	18.02	18.54	16.35
Accidts./10,000 hours	1.88	1.44	1.26	1.02	1.44

## SPECIALTY OTHERS

	65	66	67	68	69
Total Accid.	26	22	28	21	31
Fatal Accidents	5	5	3	2	2
% of Total Accidents for year	7.47	5.21	5.93	4.54	5.77
Total hours flown	56,967	89,236	99,368	93,507	103,164
% of the total for year	3.18	4.05	4.07	3.61	3.99
Accidts./10,000 hours	4.56	2.47	2.82	2.25	3.00

### Accident Rate/10,000 Hours

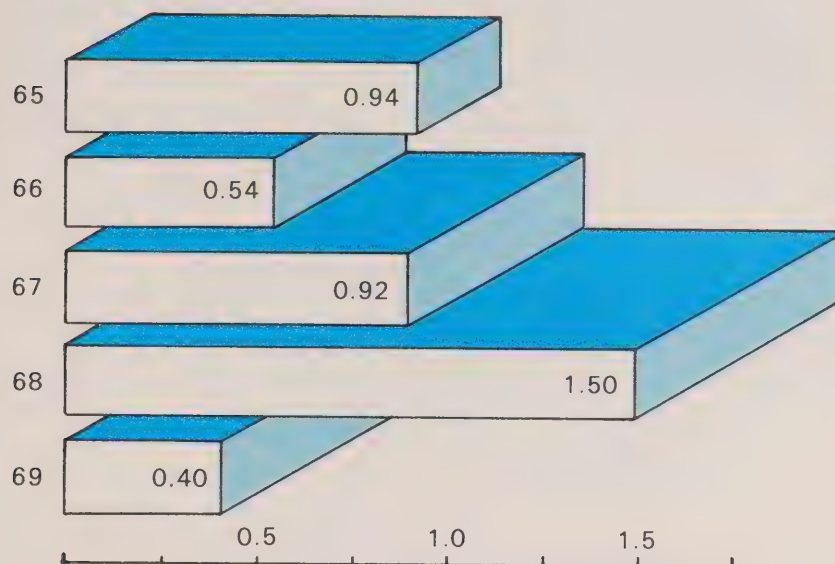
There was an increase of 10% in the activity of this class of operations. The number of accident rose 48% and the rate increased 33.3%.



## STATE OPERATIONS

### Accident Rate/10,000 Hours

The State Operation activity gained 2% over the 1968 period - The number of accidents decreased 64% and the rate was down 73% below that of the previous year.



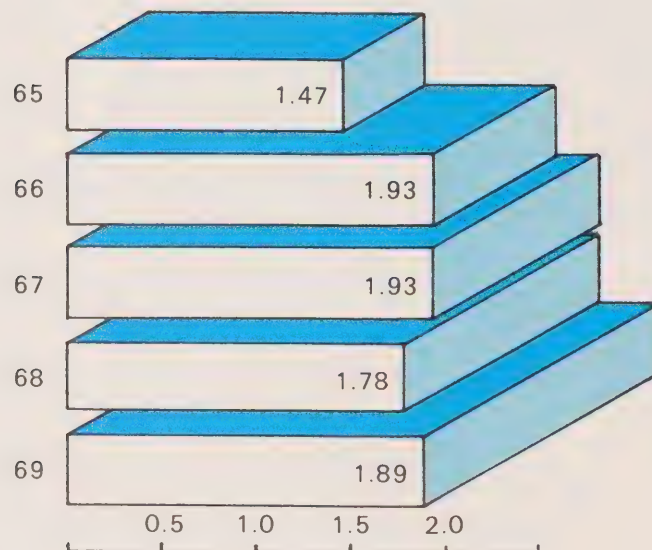
	65	66	67	68	69
Total Accid.	7	4	7	11	3
Fatal Accidents	2		4	2	
% of Total Accids. for year	2.01	0.95	1.48	2.36	0.60
Total Hours Flown	74,400	73,600	76,000	73,320	75,000
% of the total for year	4.16	3.34	3.04	2.83	2.90
Accidts./10,000 hours	0.94	0.54	0.92	1.50	0.42
No. of State a/c with Valid C of A	185	188	190	184	186

### NON-SCHEDULED OPERATIONS

	65	66	67	68	69
Total Accidents	69	101	108	105	128
Fatal Accidents	10	17	17	15	21
% of Total Accidents for year	19.8	23.9	22.9	22.7	25.4
Total No. of Hours Flown	468,570	523,136	558,530	590,546	678,526
% of Total for Year	26.28	23.75	22.31	22.79	26.23
Accidts./10,000 hours	1.47	1.93	1.93	1.78	1.89

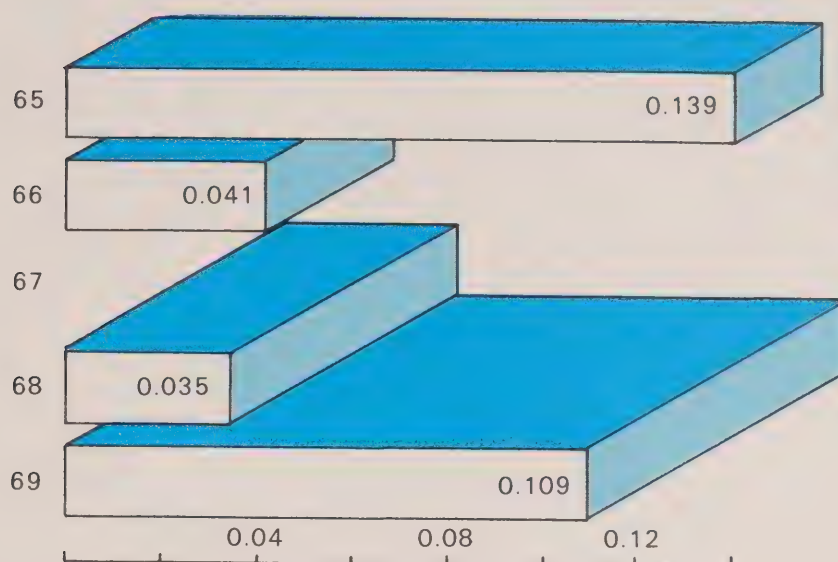
### Accident Rate/10,000 Hours

Although the activity increased by 25.5% the accident rate rose only 6.2%.



## DOMESTIC SCHEDULED FLIGHT DATA

Accident Rate/10,000 Hours



	1965	1966	1967	1968	1969
Total Accidts.	3	1		1	3
Fatal Accidents	2				2
Total No. of Hours Flown	214,639	238,886	281,562	289,598	274,354
% of total Hours for year	11.99	10.84	11.25	11.18	10.61
Accident Rate/ 10,000 hours	0.139	0.041		0.035	0.0109
No. of (Millions) PAX carried	3.98	4.59	5.60	5.79	6.39



## INTERNATIONAL SCHEDULED FLIGHT DATA

There were no accidents to International Scheduled Flights during 1969.

	1965	1966	1967	1968	1969
Total Accidents		1			
Fatal Accidents		1			
Total No. of Hours Flown	83,259	96,483	117,485	134,311	134,305
% of Total Hours for Year	4.7	4.4	4.8	5.2	5.2
Accident Rate		0.45			
No. of PAX Carried (Millions)	1.80	2.00	2.37	2.42	2.40

# **HELICOPTER ACCIDENTS VS POPULATION DATA**

Year	1964	1965	1966	1967	1968	1969
Helicopter population	316	354	390	435	453	501
Number of accidents	34	52	62	61	66	74
Percentage of helicopter population involved in accidents	10.7	14.6	15.8	14.0	14.5	14.9

# **HELICOPTER ACCIDENTS BY TYPE**

YEAR	1965	1966	1967	1968	1969
Bell 47 series	29	39	32	33	39
Bell 204		2		2	1
Bell 205					
Bell 206			5	4	5
Hiller UH12 series	13	9	9	3	8
Hiller FH-1100			4	5	7
Brantly series	1	1		1	
Hughes series	4	4	3	5	7
Sikorsky S51					
Sikorsky S55	3	5	4	4	2
Sikorsky S58	1			1	
Sikorsky S61					
Sikorsky S62	1			1	
Vertol 42A		1			1
Vertol 44B					
Alouette series		1	4	7	4

# HELICOPTER ACCIDENTS/POPULATION DATA 1969

	Population by Type	Percent of Population	Percentage Accidents	Fatal Accidents by Type
Bell 47 series	299	59.68	53.33	5
Bell 204	10	1.99	1.33	
Bell 205	5	.99		
Bell 206	38	7.58	6.66	1
Hiller UH12 series	40	7.98	10.6	1
Hiller FH-1100	19	3.79	9.33	3
Brantly series	9	1.79		
Hughes series	39	7.78	9.33	
Sikorsky S51	1	.19		
Sikorsky S55	16	3.19	2.66	
Sikorsky S58	2	.39		
Sikorsky S61	2	.39		
Sikorsky S62				
Vertol 42A	3	.59	1.33	
Vertol 44B	1	.19		
Alouette series	17	3.39	5.33	

## GYROCOPTER ACCIDENTS

Year	Gyrocopter Population	Number of Accidents	Number of Fatal Accidents	Percentages
1965	14	3	1	33%
1966	26	6	0	0%
1967	46	2	2	10%
1968	73	6	2	33%
1969	78	8	3	37.5%

(Includes Bensen, Air & Space and Hobby-copter)

In 1969 all Gyrocopter accidents involved Bensen Gyrocopters

## CASUALTY CHART (by causal factor)

Injury Type of Accident	Fatal	Serious	Minor	Nil	Total
Heavy Landing					
Propeller Failure	1				1
Engine Failure			1	2	3
Loss of control	2	1		1	4
Aerial Disintegration		1			
Total	3		1	3	8
Percentage	37.5	12.5	12.5	37.5	100

This data includes 2 unregistered Gyrocopters.









IT 23

A31











**AIRCRAFT  
ACCIDENTS  
CANADA**

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**1970**

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a  
statistical  
summary

Aircraft Accident Investigation Division  
Ministry of Transport  
Ottawa Canada



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## THE 1970 PICTURE

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The intent of this accident survey is to provide statistical information for the use of persons and organizations having a direct interest in Canadian aviation. For example, an operator will be able to assess his accident record against the record of all similar operators and he will be able to see the extent to which his group contributed to the total aircraft accident picture. Hopefully, the content of this document will stimulate a constructive interest in aviation safety and give aircraft operators some indication of the relative safety of their own operations.

In contrast to the 1969 trend, flying activity rose to an all time high of over 2,600,000 hours. This represented an increase of 1.8 percent over that of the previous year however the accident rate rose 5.6 percent or more than 3 times the rate of increase. The number of fatal accidents decreased slightly during 1970.

The number of helicopter accidents rose slightly over that of 1969, although the number of fatal accidents was less.

The aircraft activity data for this publication were provided by the Aviation Statistics Centre, Dominion Bureau of Statistics, the Air Transport Committee, the Canadian Transportation Commission and the Civil Aviation Branch, Ministry of Transport.



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## GLOSSARY OF TERMS

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### ACCIDENT

an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, in which:

-any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the or anything attached thereto, or

-the aircraft receives substantial damage, is destroyed or missing.

### AIR CARRIERS

#### Charter

Air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft.

#### Contract

Air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.

#### International Schedule

Carriers designated by the Government to operate international scheduled air services between Canada and any other State, pursuant to an international agreement or agreements to which Canada is a party.

#### Irregular Specific Point

air carriers who offer public transportation of persons, mails and/or goods by aircraft, from a designated base, serving a defined area or a specific point or points, at a toll per unit.

#### Regular Specific Point

air carriers who offer transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.

#### Scheduled

air carriers who offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit.

### AIRCRAFT

any machine that can derive support in the atmosphere from reaction of the air.

### POSITIONING

a non-revenue flight for operational reasons

### SERIOUS INJURY

an injury requiring treatment, and results in suspension of normal activity for five or more days and includes

-unconsciousness

-bone fracture except simple fracture of finger or toe

-lacerations of muscles or those which cause severe hemorrhage

-injury to an internal organ

-second or third degree burns or burns on more than 5% of the body

### SPECIALTY OPERATIONS

recreational flying, flying training, aerial photography, aerial photography and survey, aerial application and distribution, aerial inspection, reconnaissance and advertising, aerial control, aerial construction.

### UNIT TOLL

public transportation of passengers and goods at a toll per unit.

**SUMMARY OF ACCIDENTS/Casualties to Canadian Registered Aircraft (by type of operation)**

<b>FIXED WING DEC. 31,1970</b>	<b>TOTAL ACCIDS</b>	<b>FATAL ACCIDS</b>
<b>DOMESTIC SCHEDULED</b>	2	1
<b>DOMESTIC UNSCHEDULED</b>		
Regular Specific Flights		
Irregular Specific Flights	7	1
Chartered Group A	8	
Chartered Group B	64	3
Chartered Group C	12	1
<b>INTERNATIONAL SCHEDULED</b>	1	1
<b>FLYING CLUB</b>		
Flying Training	10	
Recreational Flying	10	1
<b>SPECIALTY</b>		
Flying Training	25	2
Recreational Flying	31	3
AP and Survey	2	1
AA and distribution	5	
Other	3	
<b>PRIVATE</b>		
Ferry	5	1
Company Business	54	9
Test	1	
Training Check	12	1
Recreational Flying	178	24
Aerial Pest Control/Spray	4	
Other	2	
<b>STATE AIRCRAFT</b>	3	
<b>COMMERCIAL NON-REVENUE</b>	8	3
<b>TOTALS</b>	447	52

The charts on the following four pages depict summaries of accidents and casualties that occurred during 1969. The first relates to fixed wing aircraft operations and the second to rotary wing.

PILOT		OTHER CREW		TOTAL CREW		PASSENGERS		THIRD PARTY		TOTALS	
K	SI	K	SI	K	SI	K	SI	K	SI	K	SI
								1		1	
1				1		4	1			5	1
	1		2		3						3
1	2			1	2	7	4			8	6
1	5			1	5		3			1	8
1		8		9		100				109	
1	2			1	2	1	2			2	4
2				2						2	
2	4			2	4	5	6			7	10
1				1						1	
	1		1		2						2
1		1		1	1					1	1
7	2	1		7	3	9	2	1		17	5
	1				1						1
	1				1	1	1			1	2
22	19			22	19	24	6	2	1	48	26
		1		1			1				2
3				3		11				14	
43	38	8	6	51	44	162	26	4	1	217	71

# SUMMARY OF CASUALTIES (by type of operation)

ROTARY WING  
AIRCRAFT  
DEC. 31, 1970

TOTAL  
ACCIDS

FATAL  
ACCIDS

## DOMESTIC UNSCHEDULED

Charter Group B

5

Charter Group C

37

1

## SPECIALTY

Flying Training

1

AC

1

AP and Survey

2

A Construct

3

1

AIR and Advertising

5

2

AAM

1

## PRIVATE

Company Business

2

Training — Check

2

Recreational Flying

7

1

## COMMERCIAL NON-REVENUE

Salvage

1

Testing

2

Ferry

1

## MISCELLANEOUS

Contract

2

## TOTALS

72

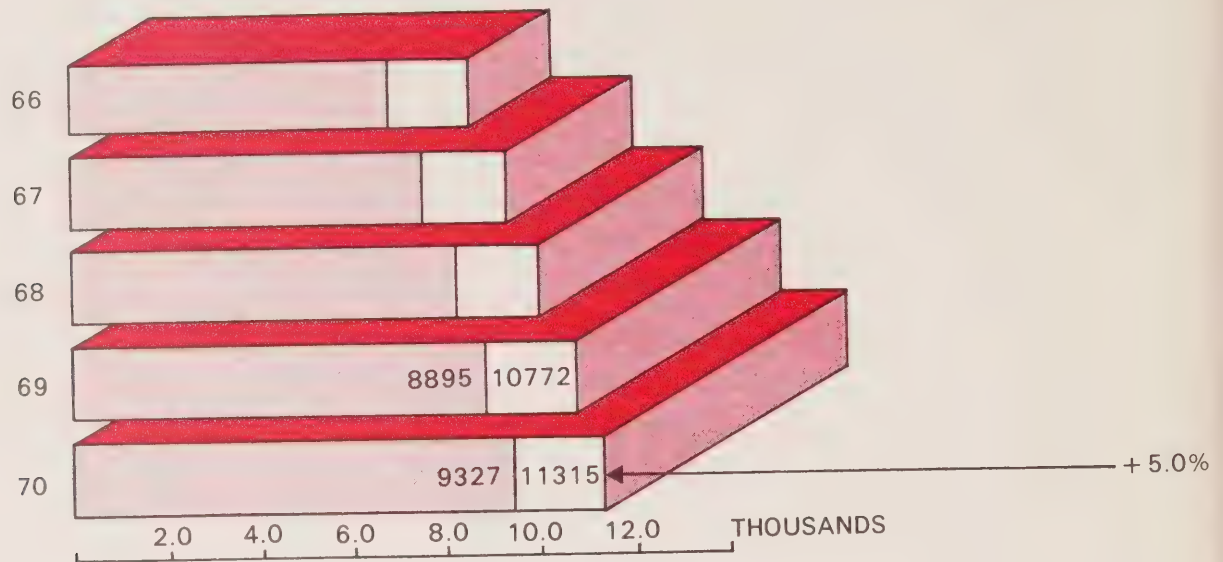
5

PILOT		OTHER CREW		TOTAL CREW		PASSENGER		THIRD PARTY		TOTAL	
K	SI	K	SI	K	SI	K	SI	K	SI	K	SI
	1				1						1
	2				2	1	5		1	1	8
1				1		1				2	
2	2			2	2		4			2	6
	1				1						1
	1				1						1
1				1					1	1	
4	7			4	7	2	9		1	6	17



## AIRCRAFT POPULATION

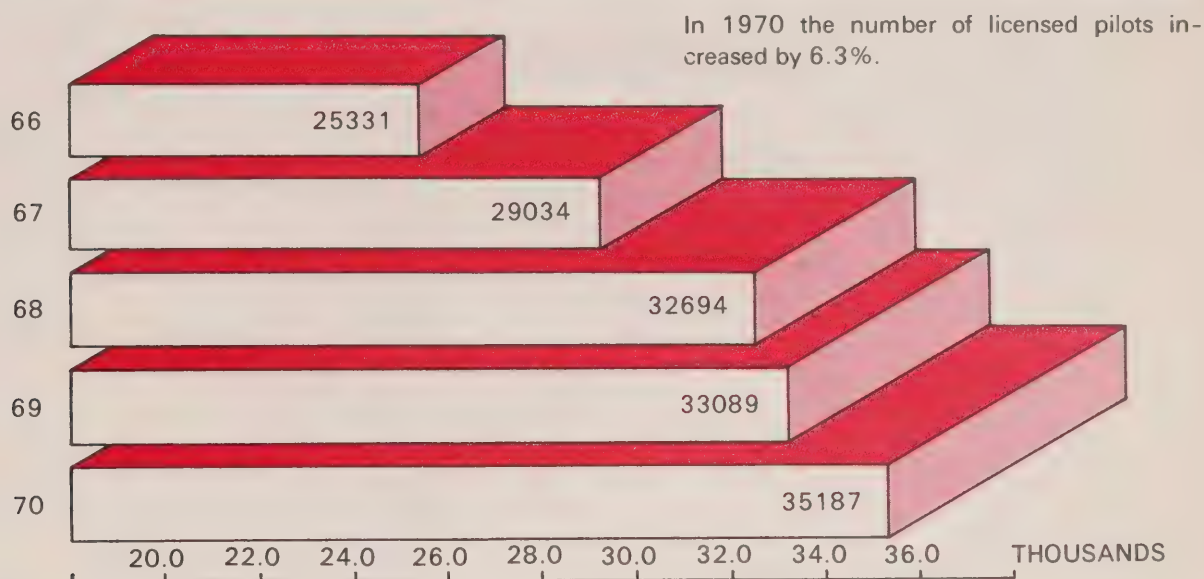
(Canadian Registered) with valid C of A



The number of registered aircraft in Canada increased by 5.0% in 1970

Commercial aircraft registrations increased during 1970 by 2.28% over 1969.

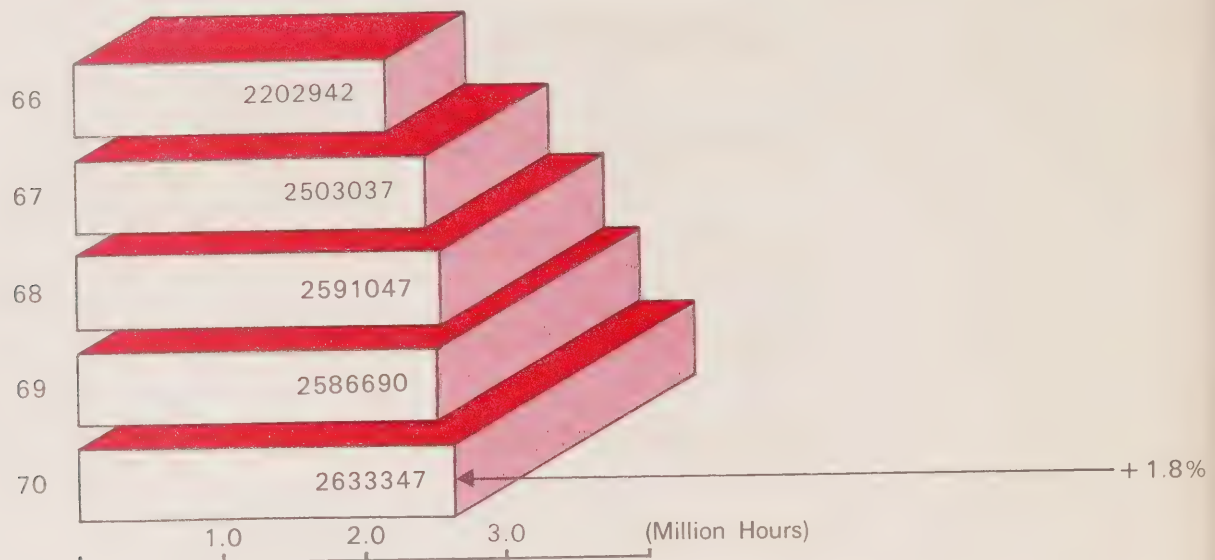
## PILOT POPULATION



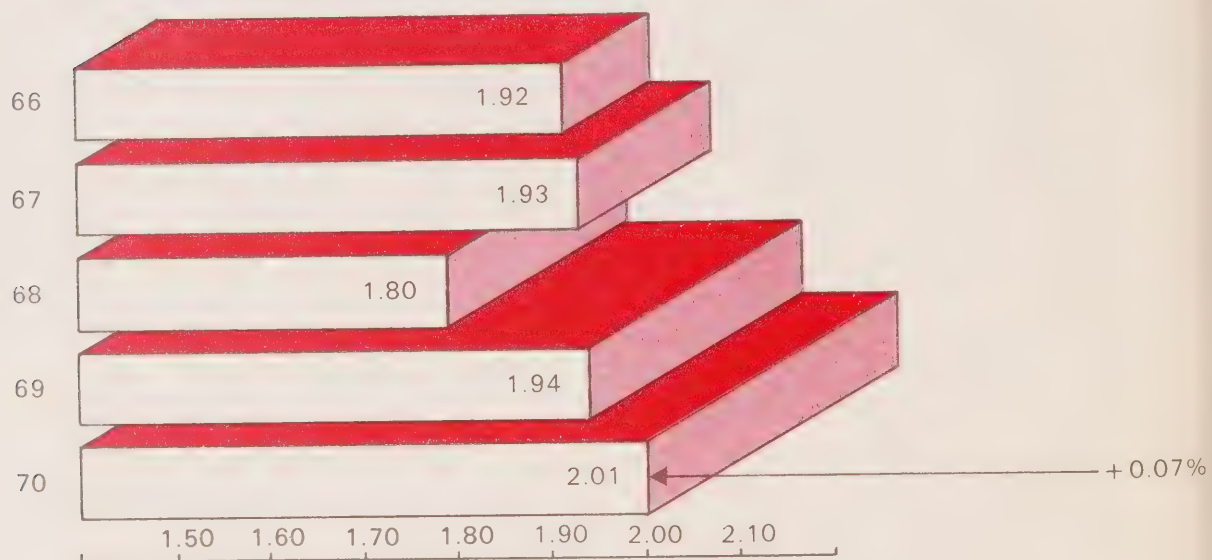
Private	25,203	71.6%
Commercial	4,945	14.1
Airline Trans.	2,779	2.1
Senior Comm.	734	7.9
Glider	1,521	4.3
Gyrocopter	5	
TOTALS	35,187	100.00%

There was an increase of 5.8% in the number of commercial, senior commercial and airline transport licences held.

## AIRCRAFT ACTIVITY IN HOURS.

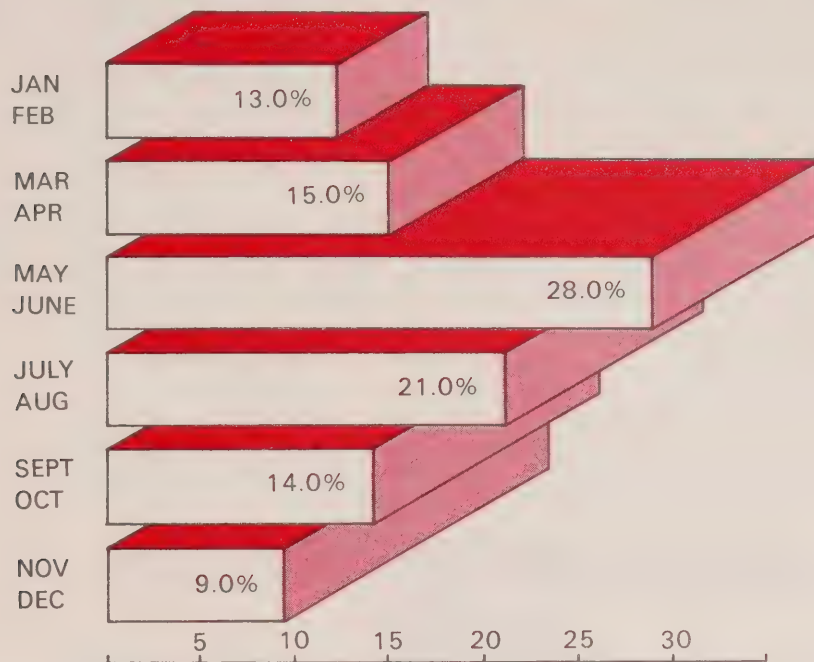


## ACCIDENT RATE/10,000 Hrs.



The aircraft activity increased by 46,657 hours or 1.8% above that of 1969: The accident rate rose 3.36%

## ACCIDENTS BY TIME OF YEAR

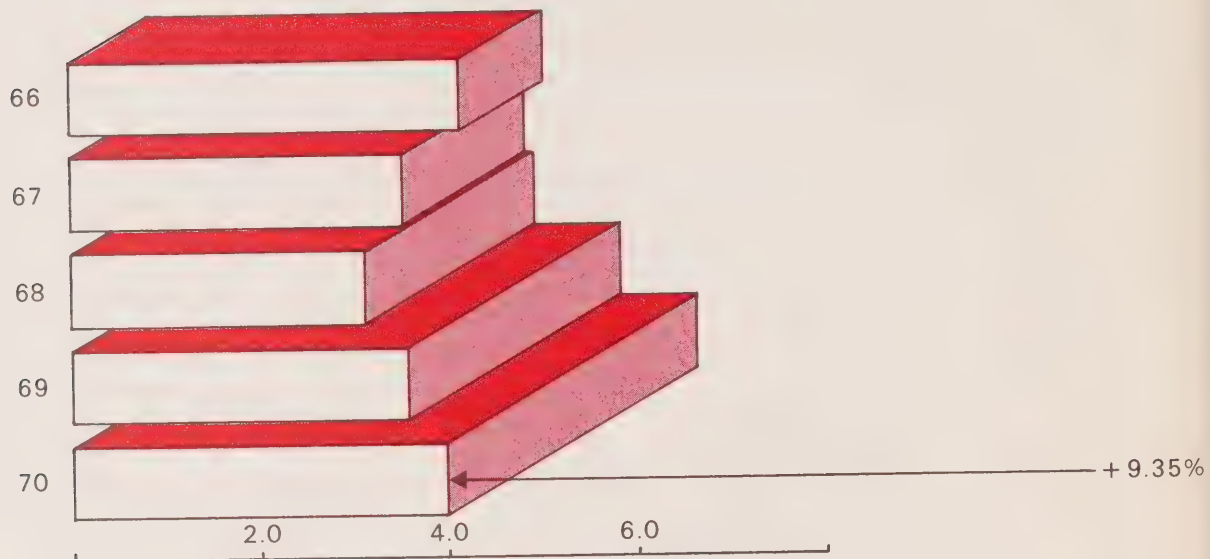


## ACCIDENT RATE/TYPE OF OPERATION

Class of Operation	No. of Accid	No. of Hours	Accids/ 10,000 hrs.
Private	276	710,000	3.89
Specialty: Others	22	103,261	2.13
NON-SCHEDULED: Charter & Contract	129	671,496	1.92
Specialty RF & FT	57	364,851	1.56
Flying Club	20	133,498	1.50
NON-SCHEDULED: Other	7	103,021	0.68
State AC	3	76,000	0.39
Scheduled	4	406,072	0.10

## PRIVATE OPERATIONS

	66	67	68	69	70
Total Accidents	239	231	214	247	274
Fatal Accidents	30	43	33	25	36
% of Total Accids for year	56.64	48.94	45.82	49.11	52.08
Total Hours Flown	584,886	656,054	698,201	700,000	710,000
% for Total for year	26.55	26.21	26.95	27.06	26.96
Accidents/10,000 hrs.	4.09	3.52	3.06	3.53	3.89
ACCIDENT RATE/10,000 hrs.					

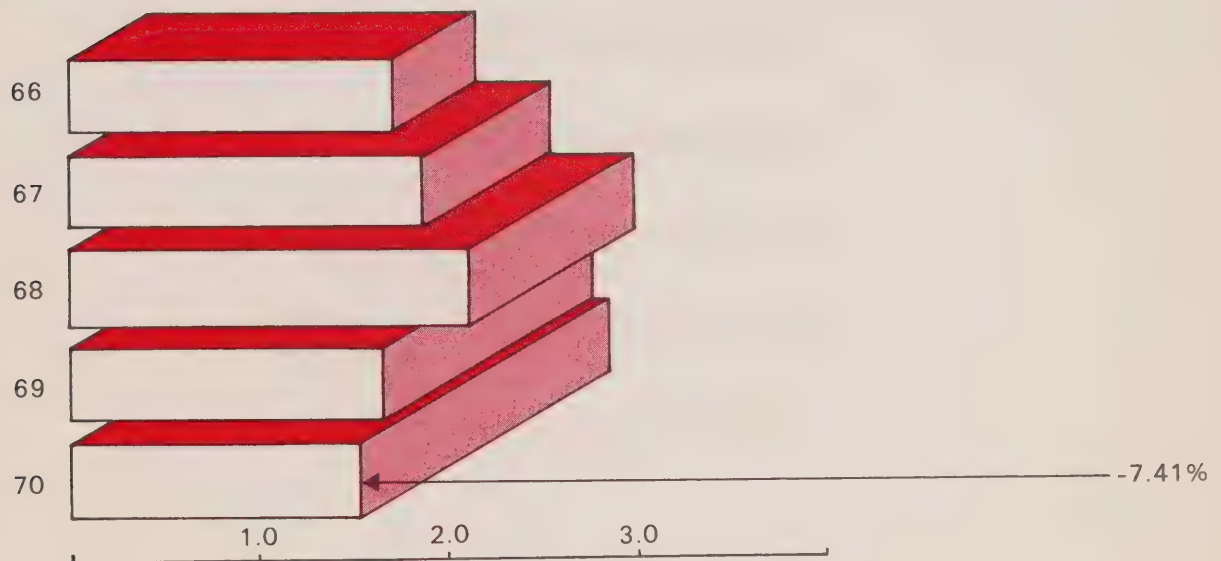


The accident rate increased 9.35% over 1969  
although the activity was down .07%



# **FLYING CLUBS: Training & Recreation**

	66	67	68	69	70
Total Accidents	29	37	36	23	20
Fatal Accidents	1	4	2	5	1
% of Total Accids for year	6.87	7.84	7.11	4.57	3.77
Total No. of Hours Flown	169,857	202,173	172,374	142,039	133,498
% of Total for year	7.71	8.08	6.65	5.49	5.07
Accidents/10,000 hrs.	1.71	1.83	2.09	1.62	1.50
ACCIDENT RATE/10,000 hrs.					

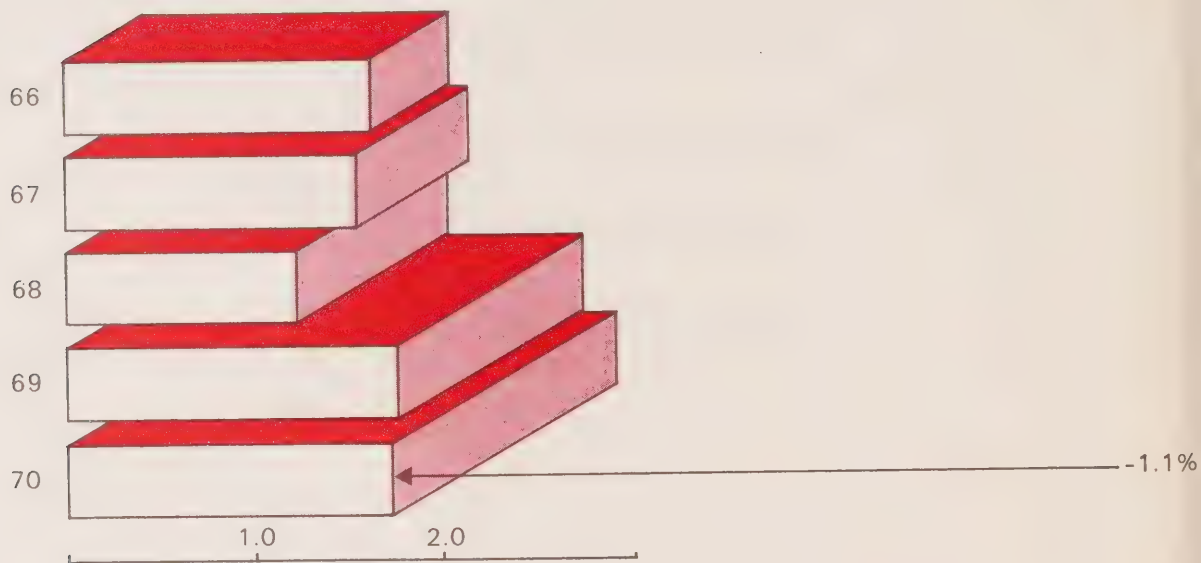


The activity decreased .06% and the accident rate by 7.41% from that of the previous year

## TOTAL SPECIALITY

	66	67	68	69	70
Total Accidents	75	85	70	92	81
Fatal Accidents	15	11	7	9	11
% of Total Accids for year	17.77	18.00	14.99	18.29	15.28
Total hours flown	456,511	550,494	574,006	525,980	468,112
% of Total for year	20.72%	21.99	22.15	20.33	17.78
Accidents/10,000 hrs.	1.64	1.54	1.22	1.75	1.73

### ACCIDENT RATE/10,000 hrs.

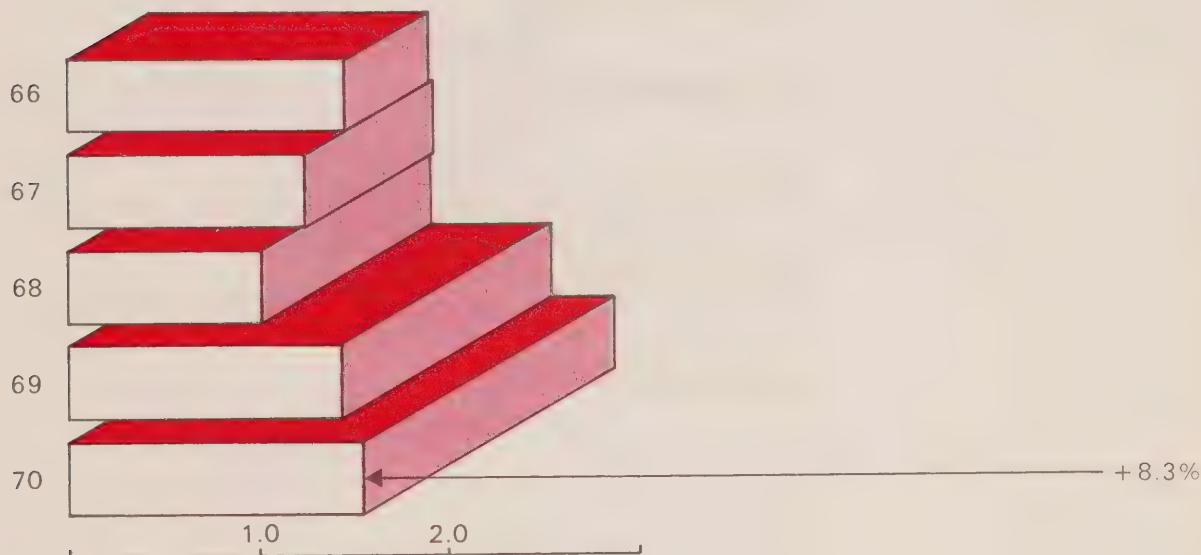


The activity decreased 12% however the rate decreased only 1.1%

# **SPECIALTY: Training & Recreation**

	66	67	68	69	70
Total Accidents	53	57	49	61	57
Fatal Accidents	10	8	5	7	6
% of Total Accids for year	12.56	12.08	10.58	12.13	10.75
Total Hours Flown	367,275	451,126	480,499	422,816	364,851
% of Total for year	16.67	18.02	18.54	16.35	13.85
Accidents/10,000 hrs.	1.44	1.26	1.02	1.44	1.56

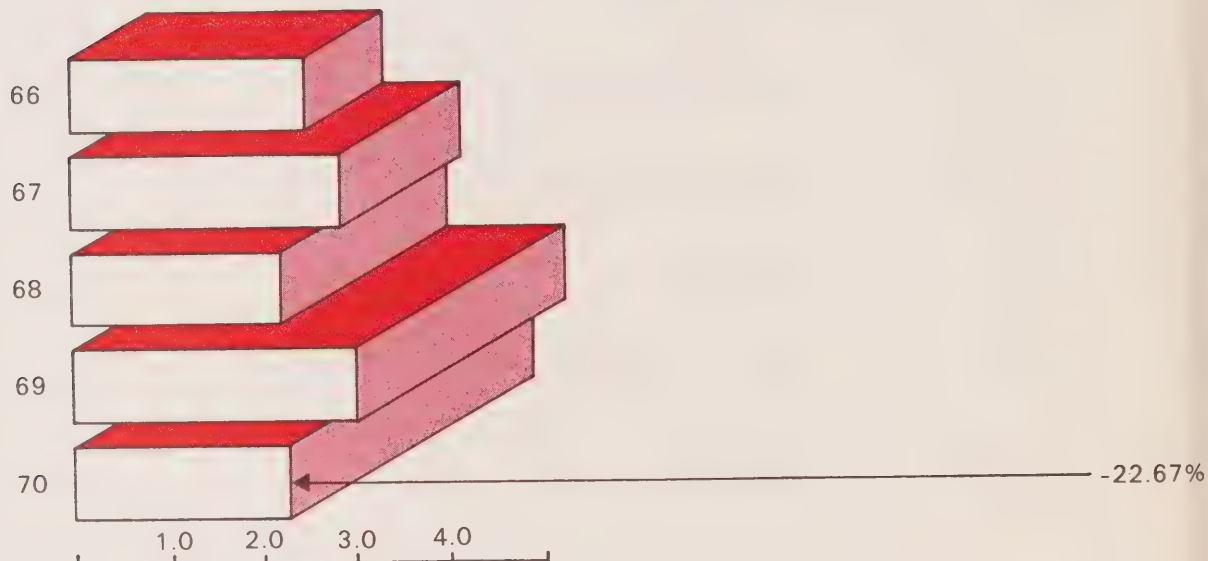
ACCIDENT RATE/10,000 hrs.



The activity decreased 13.7% and the accident rate rose 8.3% over 1969

**SPECIALTY: Others**

	66	67	68	69	70
Total Accidents	22	28	21	31	24
Fatal Accidents	5	3	2	2	5
% of Total Accids for year	5.21	5.93	4.54	5.77	4.53
Total Hours Flown	89,236	99,368	93,507	103,164	103,261
% of Total for year	4.05	4.07	3.61	3.99	3.92
Accidents/10,000 hrs.	2.47	2.82	2.25	3.00	2.32
ACCIDENT RATE/10,000 hrs.					

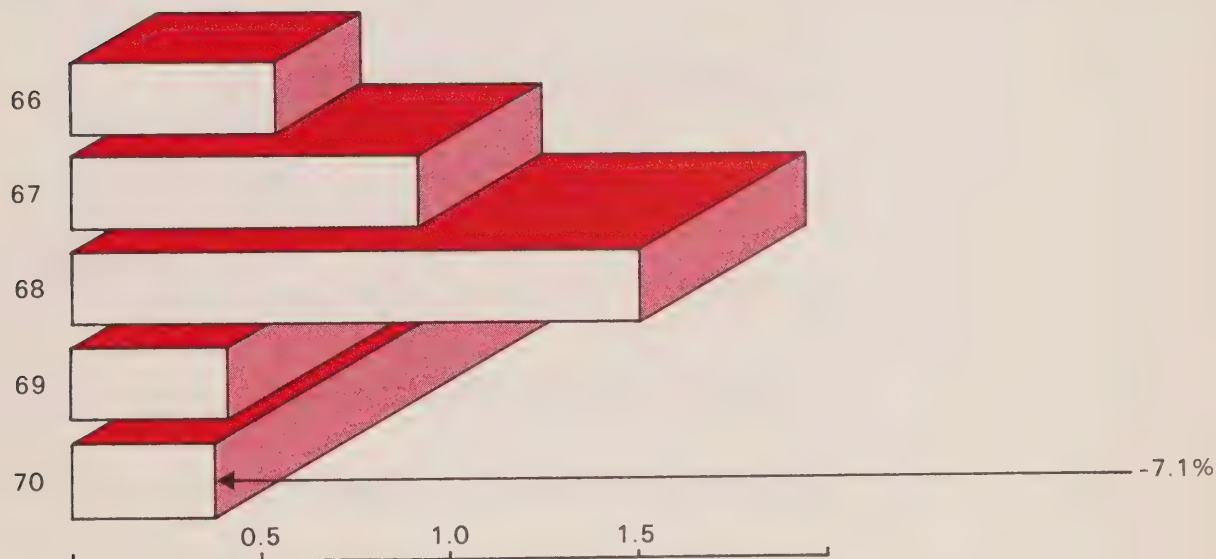


The activity increased only .05%; however the accident rate decreased 22.67%.

## STATE OPERATIONS

	66	67	68	69	70
Total Accidents	4	7	11	3	3
Fatal Accidents	—	4	2	—	—
% of Total Accids for year	0.95	1.48	2.36	0.60	0.56
Total of Hours Flown	73,600	76,000	73,320	75,000	76,000
% of Total for year	3.34%	3.04	2.83	2.90	2.89
Accidents/10,000 hrs.	0.54	0.92	1.50	0.42	0.39
No. of State A/C with Valid C of A	188	190	184	186	188

### ACCIDENT RATE/10,000 hrs.

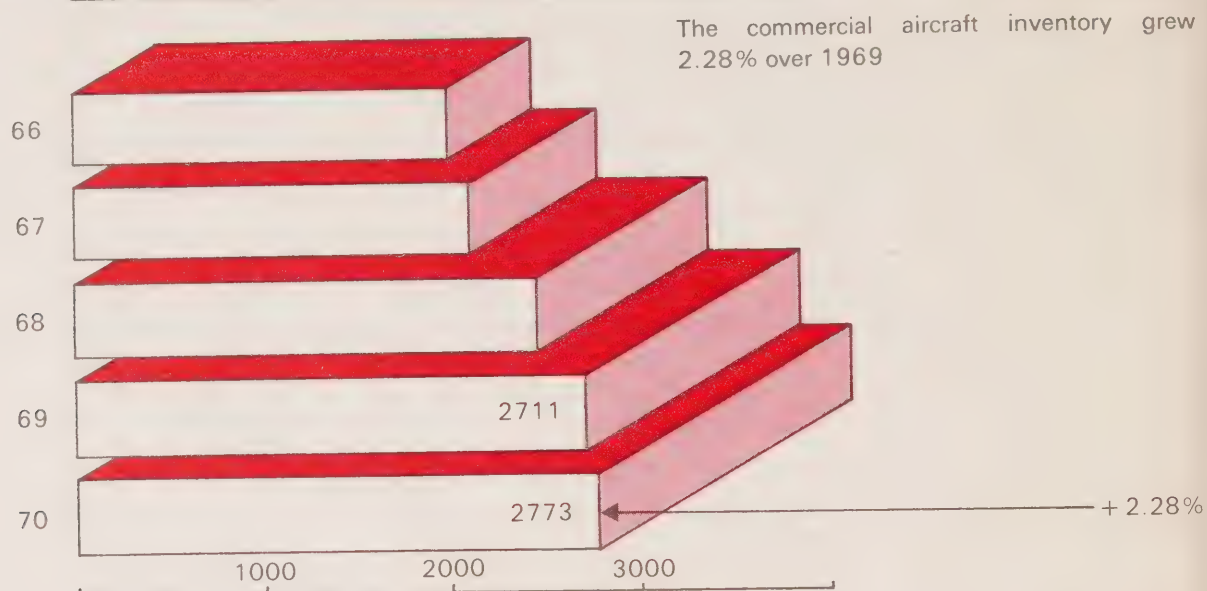


The activity increased 1.3% and the accident rate decreased 7.1%

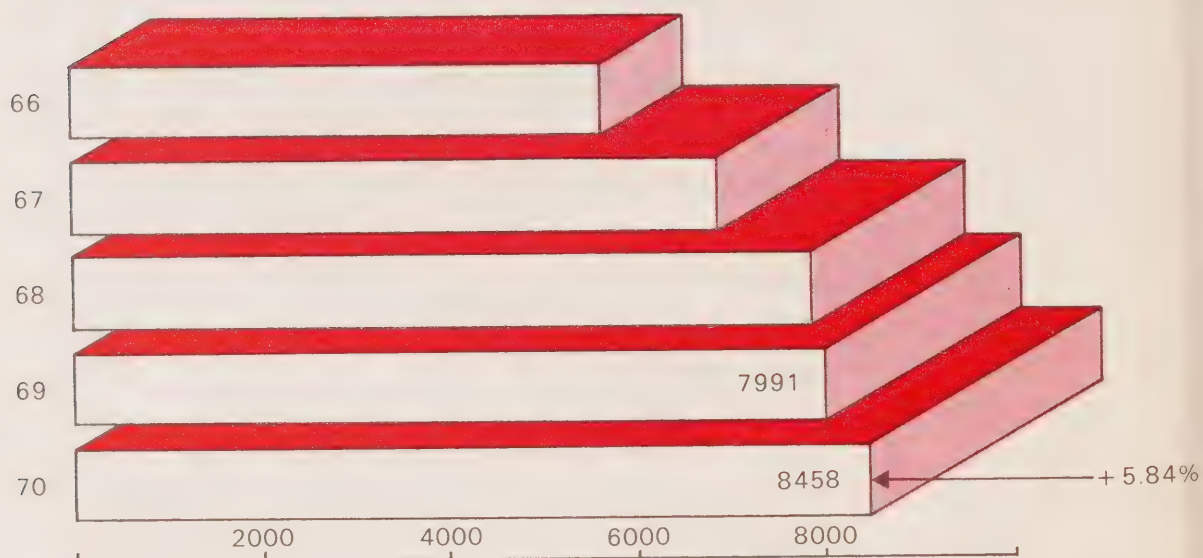


## COMMERCIAL OPERATIONS

### Commercial Aircraft (with Valid C of A)



### Total Commercial, Senior Commercial, & Airline Transport Licences Held

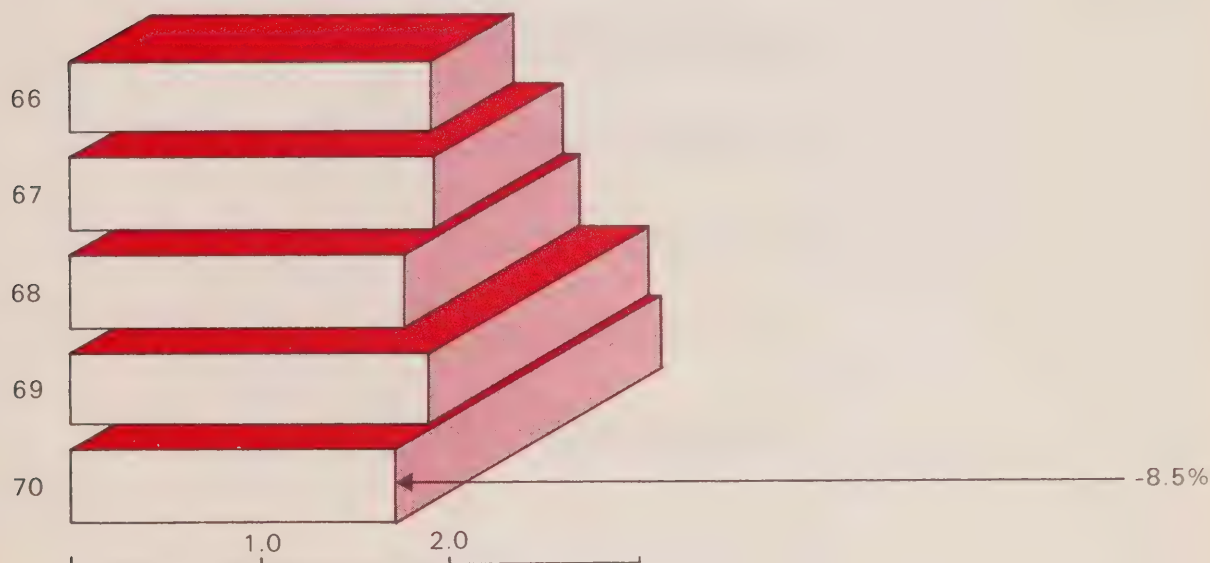


The commercial pilot population increased 5.8% during 1970.

# NON-SCHEDULED OPERATIONS

TOTAL

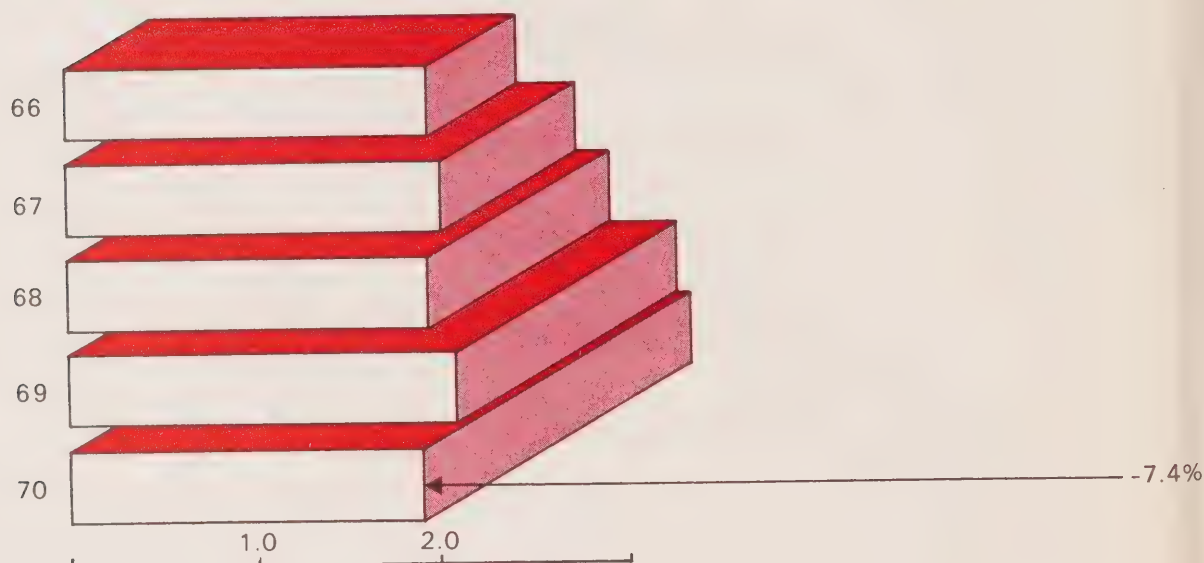
	66	67	68	69	70
Total Accidents	101	108	105	128	136
Fatal Accidents	17	17	15	21	6
% of Total Accids for year	23.9%	22.9	22.7	25.5	25.6
Total Hours Flown	523,136	558,530	590,546	678,526	774,517
% of Total for year	23.75	22.31	22.79	26.23	29.41
Accidents/10,000 hrs.	1.93	1.93	1.78	1.89	1.76
ACCIDENT RATE/10,000 hrs.					



The activity here increased 14.1% and the rate dropped 8.5%

# **NON-SCHEDULED: Charter & Contract**

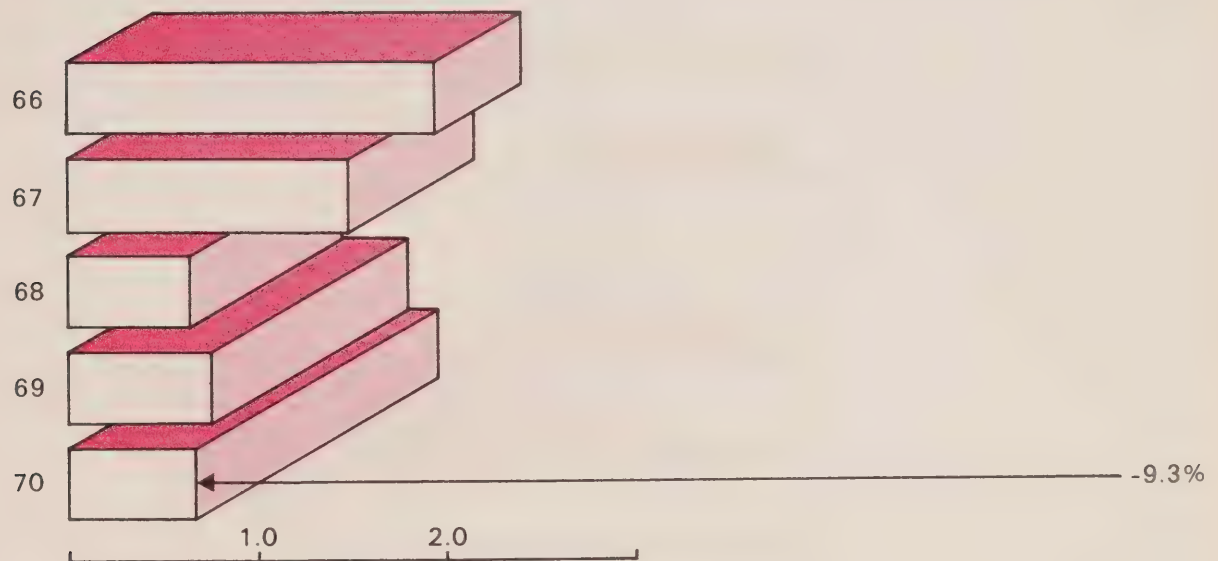
	66	67	68	69	70
Total Accidents	93	101	101	122	129
Fatal Accidents	15	14	14	20	5
% of Total Accids for year	22.04	21.40	21.81	24.25	24.34
Total Hours Flown	481,722	509,978	527,532	598,150	671,496
% of Total for year	21.87	20.37	20.36	23.12	25.50
Accidents/10,000 hrs.	1.93	1.98	1.91	2.04	1.92
ACCIDENT RATE/10,000 hrs.					



The activity rose 12.26%; however the accident rate was down 7.4%

# **NON-SCHEDULED: Other**

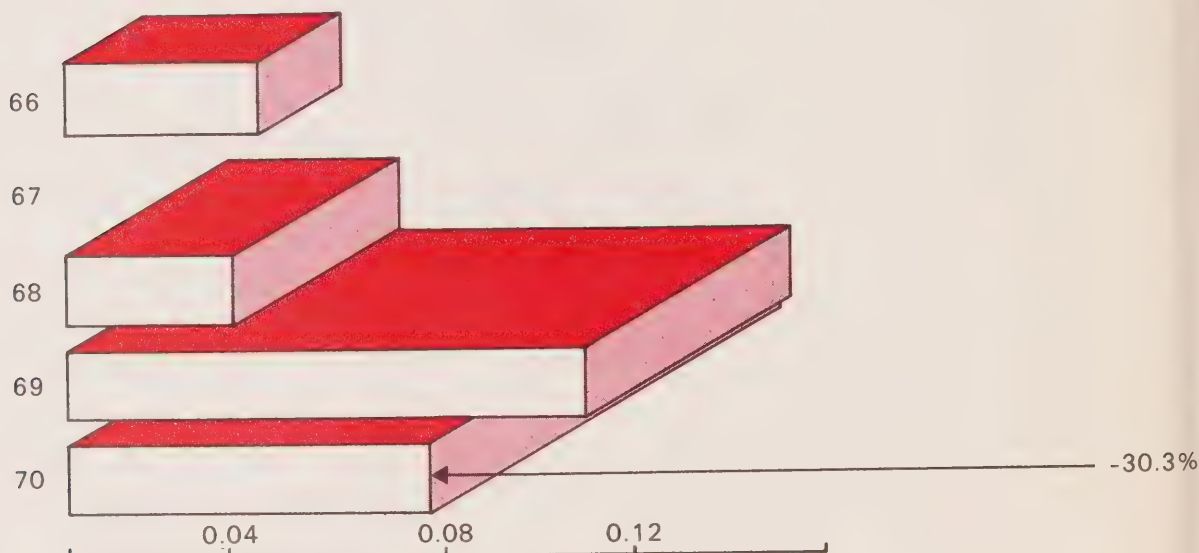
	66	67	68	69	70
Total Accidents	8	7	4	6	7
Fatal Accidents	2	3	1	1	1
% of Total Accids for year	1.90	1.48	0.86	1.19	1.32
Total Hours Flown	41, 414	48,552	63,014	80,376	103,021
% of Total for year	1.88	1.99	2.43	3.11	3.91
Accidents/10,000 hrs.	1.93	1.44	0.63	0.75	0.68
ACCIDENT RATE/10,000 hrs.					



The activity climbed sharply to 58.17% above 1969; the accident rate decreased 9.3%.

# DOMESTIC SCHEDULED

	66	67	68	69	70
Total Accidents	1	—	1	3	2
Fatal Accidents	—	—	—	2	1
% of Total Accids for year	Negligible	0	Neg.	0.60%	0.40%
Total Hours Flown	238,886	281,562	289,598	274,354	262,893
% of Total for year	10.84	11.25	11.18	10.61	9.98
Accidents/10,000 hrs.	0.041	—	0.035	0.109	0.076
No. of Pax Carried (Millions)	4.59	5.60	5.79	6.39	7.11
ACCIDENT RATE/10,000 hrs.					



The activity decreased 4.1% and the accident rate dropped 30.3%



# INTERNATIONAL SCHEDULED FLIGHT DATA

	1966	1967	1968	1969	1970
Total Accidents	1	—	—	—	2
Fatal Accidents	1	—	—	—	1
No. of hours flown	96,483	117,485	134,311	134,305	143,179
% of Total hours for year	4.4	4.8	5.2	5.2	5.4
Accident Rate	0.10	—	—	—	0.14
No. of Pax Carried (Millions)	2.00	2.37	2.42	2.40	2.72

The activity rose 6.15% and the first International scheduled accident occurred since 1966.

**HELICOPTER vs AEROPLANE  
ACCIDENT AND FATAL ACCIDENT DATA**

YEAR	1965	1966	1967	1968	1969	1970
Helicopter Accidents	52	62	61	66	74	68
Accidents to All Aircraft of Canadian Registry	348	422	472	460	502	531
Percentage of Total Accidents Which Occurred To Helicopters	14.9	14.6	12.9	14.3	14.9	12.8
Helicopter Population	354	390	435	453	501	551
Fixed-wing Accidents	293	354	409	387	420	458
Fixed-wing Population	7166	7888	8671	9439	10184	10679
Percentage of Helicopter Population Involved In Accidents	14.6	15.8	14.0	14.5	14.9	12.3
Percentage of Fixed-wing Aircraft Involved In Accidents	4.0	4.4	4.7	4.1	4.1	4.2
Fatal Helicopter Accidents	4	6	6	6	10	5
Fatal Fixed-wing Accidents	43	58	76	63	51	52
Percentage of Helicopter Accidents Fatal	7.6	9.6	9.8	9.0	13.3	7.4
Percentage Fixed-wing Accidents Fatal	14.6	16.3	18.4	16.2	12.2	11.4

INCLUDES 8 GYROCOPTERS IN 1969 — 4 in 1970

# HELICOPTER ACCIDENTS vs POPULATION DATA

YEAR	1965	1966	1967	1968	1969	1970
Helicopter Population	354	390	435	453	501	552
Accidents	52	62	61	66	75	68
Percentage of Population Involved in Accidents	14.6	15.8	14.0	14.5	14.9	12.1

## ACCIDENTS BY TYPE/BY PERCENT OF POPULATION

YEAR	1969			1970		
	Accid's	Pop	%	Accid	Pop	%
Alouette Series	4	12	33.3	2	18	11.1
Bell 47 Series	39	274	14.2	38	290	13.1
Bell 204	1	9	11	2	11	18.1
Bell 205		5		2	5	40
Bell 206	4	36	11	6	57	10.5
Brantly Series				1	3	
Hiller UH12 Series	8	35	22	5	37	13.4
Hiller FH1100	7	17	24.2	5	8	62.5
Hughes Series	5	16	32	6	30	20
Sikorsky S51		1			1	
Sikorsky S55	2	16	12		13	
Sikorsky S58		2			2	
Sikorsky S61		2		1	2	50
Sikorsky S62						
Vertol 42A	1	4	25		3	
Vertol 44B					1	

COMMERCIAL AND STATE OPERATIONS ONLY

# HELICOPTER ACCIDENTS BY TYPE OF OPERATION

YEAR	COMMERCIAL	STATE	PRIVATE
1961	26	1	1
1962	34	—	5
1963	33	—	3
1964	31	3	—
1965	41	2	9
1966	52	1	9
1967	54	3	4
1968	56	6	3
1969	69	2	4
1970	59	1	8

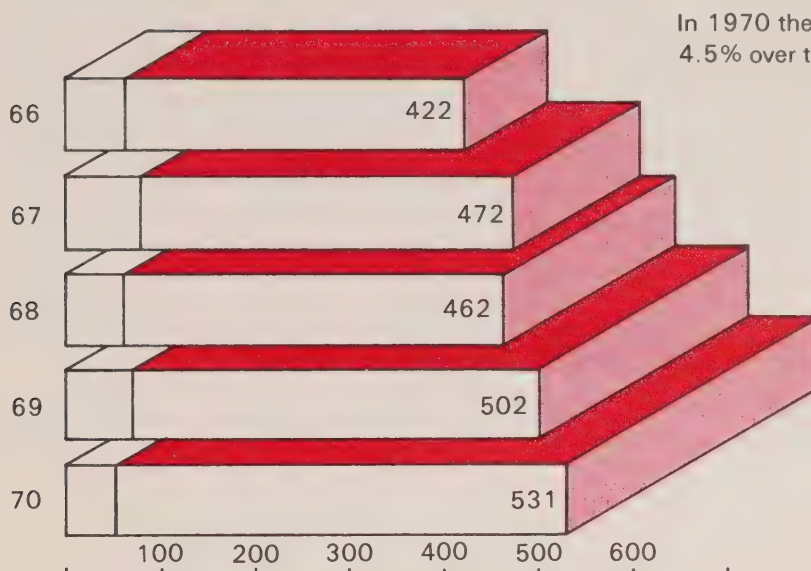
## GYROCOPTER ACCIDENTS to Dec. 31/70

	Gyrocraft Pop'n	No. of Accidents	Percentage of Accidents that are Fatal	No. of Fatal Accidents
1966	26	6	0	0%
1967	46	2	2	100%
1968	73	6	2	33.3%
1969	78	8	3	37.5%
1970	82	4	1	25%

Injury Type of Accident	Fatal	Serious	Minor	Nil	Total
Heavy Landing	—	—	—	—	—
Misuse of Flight Controls	—	—	1	—	1
Engine Failure				1	1
Loss of Control Aerial Breakup	1	1	—	—	2
Propeller Failure	—	—	—	—	—
Total	1	1	1	1	4

## TOTAL NUMBER OF ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT

1966 — 1970



In 1970 the number of accidents increased by 4.5% over that of 1969.

\*includes 6 accidents to Canadian aircraft in foreign countries.

### CASUALTY CHART

	1966	1967	1968	1969	1970
No. of Fatalities	171	157	121	140	223
No. seriously injured	74	73	64	84	88
Total Casualties	245	235	185	224	311

There was a fatal accident for every 9.3 accidents in 1970. The rate was 7.6 in 1969.

### ACCIDENTS TO FOREIGN AIRCRAFT IN CANADA

1966	39
1967	41
1968	30
1969	40
1970	43



**AIRCRAFT ACCIDENTS CANADA (by region)**

	1964	1965	1966	1967	1968	1969	1970
PACIFIC	59	91	113	112	107	100	101
WESTERN REGION	42	70	83	89	94	106	96
CENTRAL REGION	33	46	49	76	97	97	127
ONTARIO REGION	82	83	104	86	95	103	116
QUEBEC REGION	51	43	52	78	66	82	102
ATLANTIC REGION	21	33	29	46	24	28	26
	288	366	430	483	487	526	568

Includes 43 foreign registered aircraft.

Does not include 6 accidents to Canadian Registered Aircraft which occurred in Foreign countries.





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# Aircraft Accidents Canada

1







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~~AIRCRAFT~~  
~~ACCIDENTS~~  
CANADA 7

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1971

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a  
statistical  
summary



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Ottawa, 1973

The total number of accidents to Canadian registered aircraft in Canada increased by 2.26% over that of 1970 and the number of accidents sustained by all commercial operators exceeded those of private operators by 17.67%.

The total activity increased by approximately 185,000 hours over the 1970 figure and as a result the accident rate per 10,000 hours decreased 4.5%.

Commercial helicopter accidents contributed substantially to this differential because the number of accidents of these operators increased 5.82% over the previous year. Quebec region sustained 40.27% of the total helicopter accidents in Canada, due of course to the volume of air transportation required by the activity of the James Bay project and others like it.

The section in this publication which had related to gyrocopters has been removed and replaced with data concerning glider operations. It will be seen that the glider population grew steadily until the end of 1970 but then the rate of increase dropped in 1971. It is regretted that the total flying hours of this activity is not available at this time and although an accident rate per population is shown, it should not be compared with the rate for other types of aircraft which are based solely on activity.

This summary also includes a brief resume of agricultural aircraft accidents from 1961 to 1971. This indicates the aircraft damage and crew injury pattern for the 89 accidents which have occurred. An accident rate chart is shown for the same period and from a high in 1961 the pattern has been irregular, and in 1971, there were 7.7 accidents per 10,000 hours.

As has been stated before, the intent of this accident survey is to provide statistical information for the use of persons and organizations having a direct interest in Canadian aviation. To this end we are always open to suggestions from all organizations as to what they would like to see in a statistical summary. So when you have examined this document if there is any information of a statistical nature that you would like to see displayed in this publication write to the Ministry of Transport and an attempt to accommodate your needs will be made.





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## GLOSSARY OF TERMS

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### ACCIDENT

an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, in which:

- any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or
- the aircraft receives substantial damage, is destroyed or missing.

### AIR CARRIERS

#### Charter

Air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft.

#### Contract

Air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.

#### International Schedule

Carriers designated by the Government to operate international scheduled air services between Canada and any other State, pursuant to an international agreement or agreements to which Canada is a party.

#### Irregular Specific Point

Air carriers who offer public transportation of persons, mails and/or goods by aircraft, from a designated base, serving a defined area or a specific point or points, at a toll per unit.

#### Regular Specific Point

Air carriers who offer transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.

#### Scheduled

Air carriers who offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit.

### AIRCRAFT

any machine that can derive support in the atmosphere from reaction of the air.

### POSITIONING

a non-revenue flight for operational reasons

### SERIOUS INJURY

an injury requiring treatment, and results in suspension of normal activity for five or more days and includes

- unconsciousness
- bone fracture except simple fracture of finger or toe
- lacerations of muscles or those which cause severe hemorrhage
- injury to an internal organ
- second or third degree burns or burns on more than 5% of the body.

### SPECIALTY OPERATIONS

recreational flying, flying training, aerial photography, aerial photography and survey, aerial application and distribution, aerial inspection, reconnaissance and advertising, aerial control, aerial construction.

### UNIT TOLL

public transportation of passengers and goods at a toll per unit.

**SUMMARY OF ACCIDENTS/Casualties** to Canadian Registered Aircraft (by type of operation)

FIXED WING 1971	TOTAL ACCIDS	FATAL ACCIDS
DOMESTIC SCHEDULED	3	
DOMESTIC NON-SCHEDULED		
Regular Specific Point	3	
Irregular Specific Point	7	2
Charter Class 4A	4	
Charter Class 4B	69	14
Charter Class 4C	9	1
Contract Class 5		
INTERNATIONAL SCHEDULED	1	
STATE AIRCRAFT	6	1
FLYING CLUB		
Flying Training	9	1
Recreational Flying	18	5
COMMERCIAL NON-REVENUE	12	
SPECIALTY		
Recreational Flying	24	4
Flying Training	31	2
AP	1	
APS	3	1
AAD	13	
AIRA	4	1
AC	6	2
A Construction		
AAM		
UNKNOWN		
PRIVATE		
Recreational Flying	176	25
Training	10	2
Testing	4	
Ferry	5	
Company Business	48	7
Aerial Spray	1	
Other	0	0
TOTALS	467	68

PILOT		OTHER CREW		TOTAL CREW		PASSENGERS		THIRD PARTY		TOTALS	
K	SI	K	SI	K	SI	K	SI	K	SI	K	SI
			6		6						6
1				1		7	2			8	2
11	6	1		12	6	24	7		0	36	13
1				1		2	1			3	1
1	1	1		2	1		1			2	2
1				1		3				4	
5				5		3	1			8	1
	1				1						1
3	5			3	5	6	4			9	9
2	4	1		3	4		1			3	5
1		1		2						2	
	5				5		1				6
1	1		1	1	2	3				4	2
2		2		4						4	
22	16			22	16	21	9			43	25
1	1	3		4	1					4	1
7	2			7	2	9	4		2	16	8
59	42	9	7	68	49	78	31		2	146	81

ROTARY WING  
1971

TOTAL  
ACCIDS

FATAL  
ACCIDS

DOMESTIC SCHEDULED

DOMESTIC NON-SCHEDULED

Regular Specific Points

Irregular Specific Points

Charter Class 4A

4

Charter Class 4B

39

4

Contract Class 5

1

INTERNATIONAL SCHEDULED

STATE AIRCRAFT

1

FLYING CLUB

Flying Training

Recreational Flying

COMMERCIAL NON-REVENUE

5

1

SPECIALTY

Recreational Flying

2

1

Flying Training

5

1

AP

2

APS

AAD

AIRA

7

AC

4

A Construction

1

AAM

UNKNOWN

PRIVATE

Recreational Flying

3

Training

1

Testing

Ferry

1

Company Business

Aerial Spray

Other

TOTALS

77

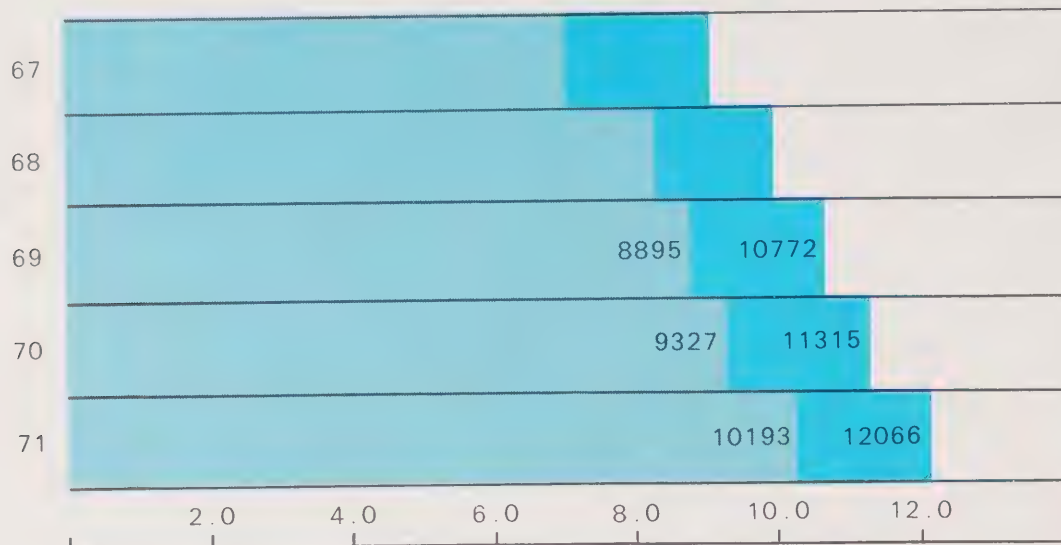
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## AIRCRAFT INFORMATION

Number of Canadian Registered Aircraft; with valid C of A

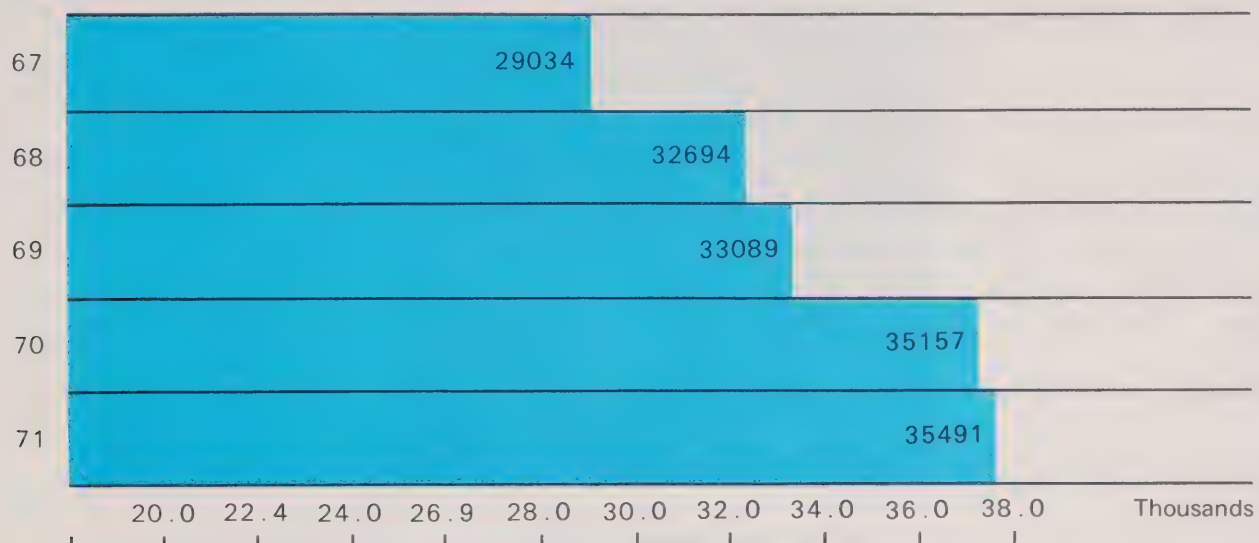


The number of registered aircraft in Canada increased 6.7% in 1971

### Total Aircraft in Canada (By registration)

Private	7783
Private Ultra-lite	555
Private Restricted	33
Total	8371
Commercial	3359
Commercial Restricted	102
State	225
State Experimental	9
Total	3695
Grand Total	12066

## PILOT INFORMATION



Pilot licences in force during years 1967 - 1971

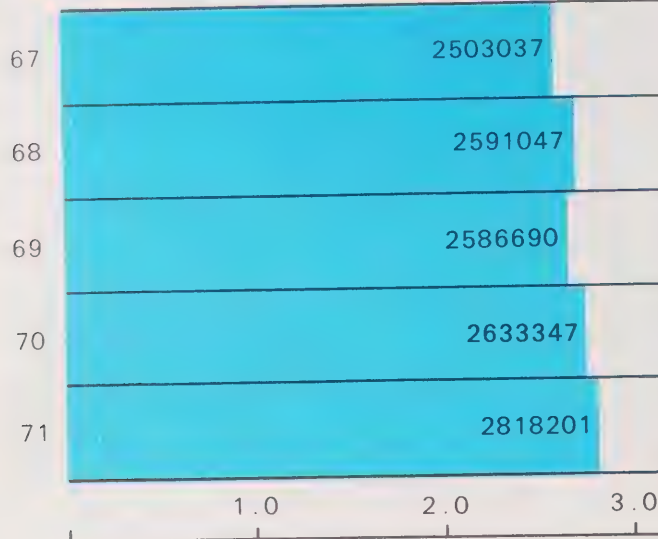
\*1967 figures not accurate due to irreparable computer error.

### Percentage of Pilot's Licenses by Type

Airline Transport	2827	7.97
Senior Commercial	775	2.18
Commercial	4975	14.02
Private	25759	72.57
Glider	1157	3.25
Gyrocopter	5	0.01
TOTAL	35491	100%

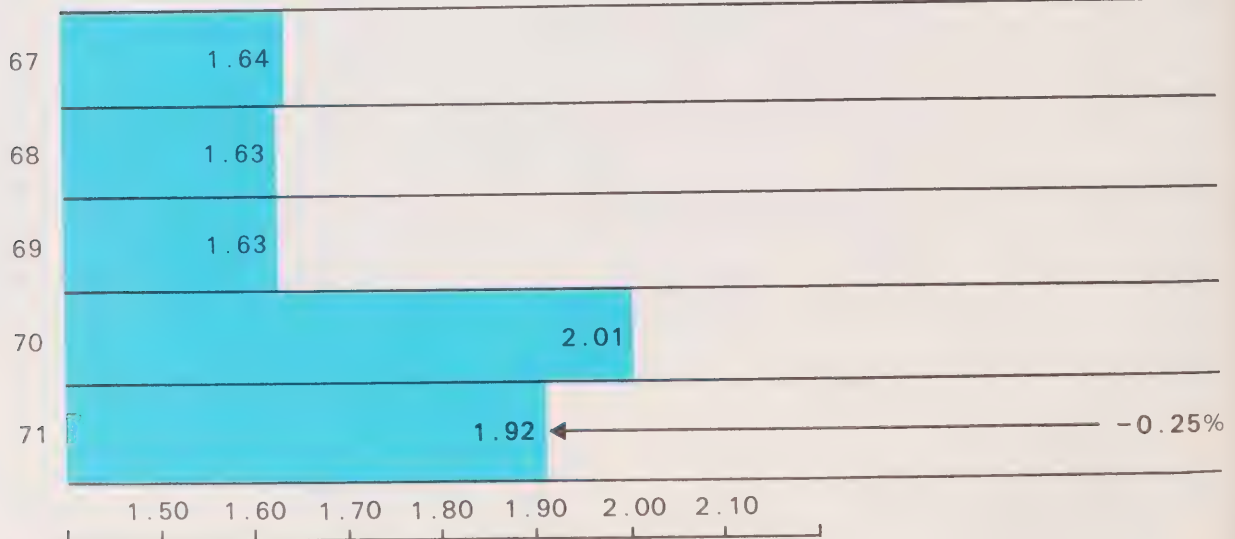
## ACCIDENT INFORMATION

Million Flying Hours



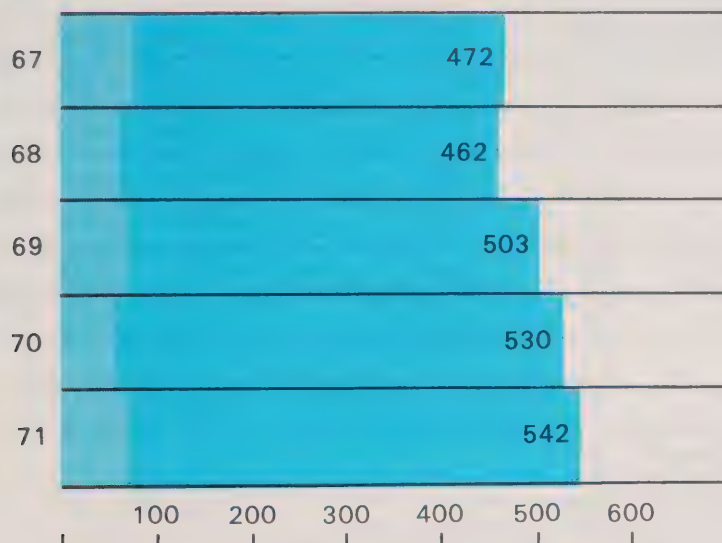
Although the total aircraft activity increased in 1971 by approximately 185,000 hours over that of 1970 the accident rate/10,000 hours decreased by 4.5%.

Accident Rate/10,000 Hours



## TOTAL NUMBER OF ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT

1967-1971 Those fatal 



In 1971 the number of accidents increased by 0.09% over that of 1970.

### CASUALTY CHART

	67	68	69	70	71
No. of Fatalities	157	121	140	223	159
No. Seriously Injured	78	64	84	88	96
Total Casualties	235	185	224	311	253

There was a fatal accident for every 7.5 accidents in 1971. The rate was 9.3 in 1970.

### Foreign Aircraft Accidents in Canada

1967	41
1968	36
1969	40
1970	43
1971	34 - (8 fatal)



# AIRCRAFT ACCIDENT DAMAGE PATTERN

	1970	1971
TOTAL ACCIDENTS	571	568
AIRCRAFT DAMAGE		
Destroyed	57	82
% Destroyed	9.8	14.43
Substantial	494	466
% Substantial	86.35	82.04
Minor	8	7
% Minor	1.22	1.23
Undamaged	7	11
% Undamaged	1.25	1.93
Unknown (disappeared)	5	7
% Unknown	0.90	1.23

Aircraft Accident Rates/10,000 Hours 1960 - 1971

Year	Canadian Aircraft Activity - Hours	No. of Accidents	Rate/10,000 Hrs.
1960	1323044	331	2,501
1961	1326692	320	2,412
1962	1350709	281	2,080
1963	1408245	259	1,839
1964	1544803	268	1,734
1965	1790329	348	1,943
1966	2202918	422	1,915
1967	2503037	411	1,642
1968	2591047	462	1,632
1969	2586690	423	1,635
1970	2633376	530	2,012
1971	2818201	542	1,923

## AIRCRAFT ACCIDENTS IN CANADA

(by region)

	1965	1966	1967	1968	1969	1970	1971
Pacific Region	91	113	112	107	100	101	96
Western Region	70	83	89	94	106	98	110
Central Region	46	44	76	97	97	121	111
Ontario Region	83	104	86	95	103	123	112
Quebec Region	43	52	78	66	82	102	112
Atlantic Region	33	29	46	24	28	26	27
TOTAL	366	430	487	483	526	571	568*

\*Includes 34 foreign registered aircraft

Does not include 8 accidents to Canadian registered aircraft in foreign countries.

## ACCIDENT RATE BY TYPE OF OPERATION (CANADIAN REGISTERED)

Operation	No. of Accid	No. of Hours	Accid/ 10,000 hrs.
Private	249	724,285	3.43
Specialty	119	576,060	2.06
Non-scheduled charter & contract	137	724,460	1.89
Flying Club	26	140,049	1.92
State	7	79,762	0.88
Scheduled	4	434,675	0.09

## SEASONAL ACCIDENT SUMMARY

### Percentage of total accidents by time of year

Jan - Feb	12.58%
Mar - Apr	15.79%
May - June	18.22%
July - Aug	25.17%
Sept - Oct	16.49%
Nov - Dec	11.28%

### Number of Accidents by Month of Occurrence

	1968	1969	1970	1971
January	32	22	27	41
February	30	27	41	31
March	35	21	38	48
April	48	31	40	43
May	44	44	67	35
June	47	76	81	70
July	51	71	76	62
August	56	80	51	83
September	49	47	46	54
October	41	32	38	41
November	27	38	15	33
December	29	32	33	35
				576

**AIRCRAFT ACCIDENTS 1971  
BY TYPE OF OPERATION, BY REGION**

TYPE OF OPERATION	ATLANTIC	QUEBEC	ONTARIO	CENTRAL	WESTERN	PACIFIC
<b>DOMESTIC SCHEDULED</b>	1	1	1			
<b>SCHEDULED INTERNATIONAL</b>	1					
<b>DOMESTIC NON-SCHEDULED</b>						
Regular Specific Points						3
Irregular Specific Points		2				5
Charter Class 4A				4		
Charter Class 4B	2	17	3	21	18	12
Charter Class 4C	3	17	4	4	12	7
Contract Class 5					1	
<b>FLYING CLUB</b>						
Flying Training	2	2	2	2	1	
Recreational Flying	3	5	6	2	1	
<b>SPECIALTY</b>						
Recreational Flying	1	3	10	6	1	4
Flying Training	1	6	12	6	3	8
AP				1		
APS		2	1	1		
AAD	3	3		2	3	2
AIRA		4	1		4	2
AC	1	1	1		4	3
A Construction		1				
AAM						
<b>COMMERCIAL NON-REVENUE</b>	2	4		3	5	3
<b>STATE AIRCRAFT</b>	1	1	1	2	1	1
<b>PRIVATE</b>						
Recreational Flying	6	31	53	40	38	34
Training		4	4	1	1	2
Testing			1	1		1
Ferry	1		1	1	3	
Company Business		7	9	12	11	9
Aerial Spray				2		
Other			2		2	
<b>UNKNOWN</b>						
<b>TOTALS</b>	27	112	112	111	110	96

# ACCIDENTS BY PHASE OF FLIGHT

1970 - 1971 (INCLUSIVE)

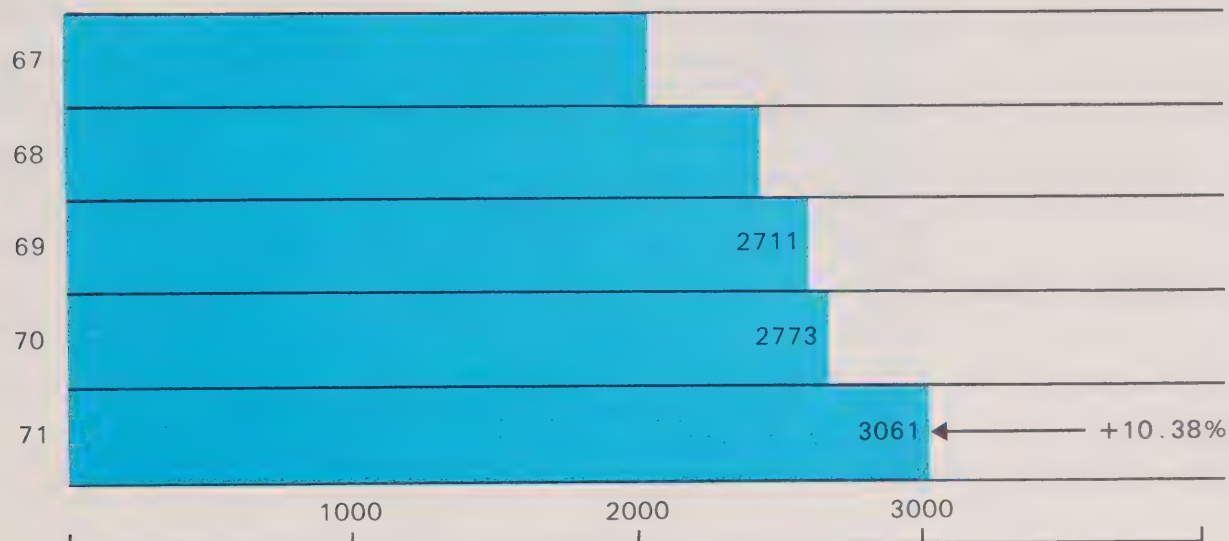
Phase	1970 ( Total Accidents 571 )		1971 ( Total Accidents 568 )	
	Frequency	% of Total	Frequency	% of Total
Ground				
Start-up	5	0.87	9	1.58
Stationary	2	0.35	6	1.05
Taxiing	22	3.8	19	3.33
Air Taxiing	-	-	1	0.17
Step Taxiing	3	0.57	3	0.52
Beaching	1	0.17	-	-
Mooring	4	0.70	-	-
Docking	3	0.57	3	0.52
Shut-down	2	0.35	2	0.35
Parking	-	-	2	0.35
Take Off				
Line up	3	0.57	1	0.17
Run	32	5.6	34	5.9
Lift off	36	6.3	51	8.9
Hover	3	0.57	3	0.52
In Flight				
Climb	75	13.3	57	10.03
Descent	16	2.8	12	2.11
Cruise	87	15.2	97	17.07
Level Turn	15	2.6	12	2.11
Climbing Turn	15	2.6	20	3.5
Descending Turn	7	1.2	10	1.7
Translation	5	0.87	4	0.7
Hover	2	0.35	-	-
Landing				
Initial Approach	5	0.87	15	2.6
Final Approach	36	6.3	37	6.5
Flare	28	4.9	15	2.64
Hover	4	0.70	4	0.70
Touchdown	60	10.5	58	10.21
Run out	89	15.5	81	14.26
Turn-off	1	0.07	2	0.35
Other				
Load pick-up	2	0.35	4	0.70
Load Drop	3	0.57	1	0.17
Unknown	5	0.87	4	0.70

Includes 3 Foreign Registered Aircraft and 8 accidents to Canadian Registered Aircraft in Foreign Countries.



## COMMERCIAL OPERATIONS

### Number of Commercial Aircraft



There was an increase of 10.38% in the number of commercial aircraft with valid certificates of airworthiness and an increase of 1.4% in the number of commercial pilot licences.

### Total number of Commercial, Senior Commercial and Airline Transport Pilot Licenses.

1967	EXACT FIGURE NOT KNOWN
1968	7896
1969	7991
1970	8458
1971	8577*

\*Increase of 1.4%

## INTERNATIONAL SCHEDULED FLIGHT DATA

There were 2 accidents to International Scheduled Flights during 1971.

	67	68	69	70	71
Total Accids.	-	-	-	2	1.1
Fatal Accids.	-	-	-	1	0
Total Hours Flown	117,485	134,311	134,305	143,179	142,432
% of Total Hours for year	4.8	5.2	5.2	5.4	5.1
Accident Rate 10,000 hours	-	-	-	0.14	0.07
No. of PAX carried (Millions)	2.37	2.42	2.40	2.72	2.87

## HELICOPTER ACCIDENTS BY TYPE OF REGISTRATION

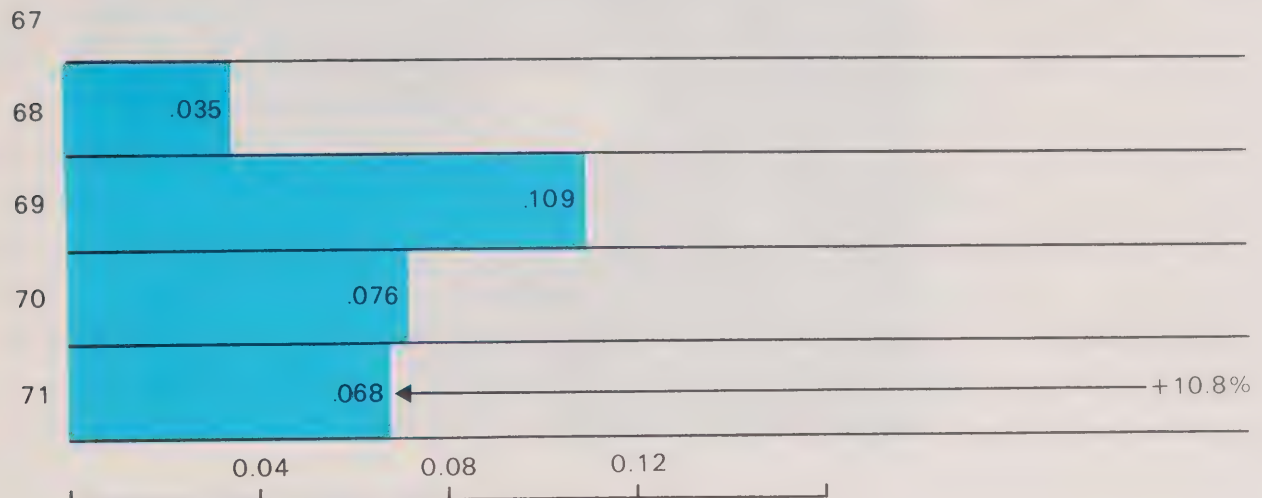
YEAR	COMMERCIAL	STATE	PRIVATE
1962	34	-	5
1963	33	-	3
1964	31	3	-
1965	41	2	9
1966	52	1	9
1967	54	3	4
1968	56	6	3
1969	69	2	4
1970	59	1	7
1971	69	1	* 2

### Commercial Helicopter Accidents

Total Accidents	69
Fatal Accidents	7
% Total accidents/year	12.6
Total hours flown	235932
% of total for year	8.3
Accid/10,000 hours	2.92%

\*Does not include 3 Gyrocopter accidents.

## DOMESTIC SCHEDULED FLIGHT DATA

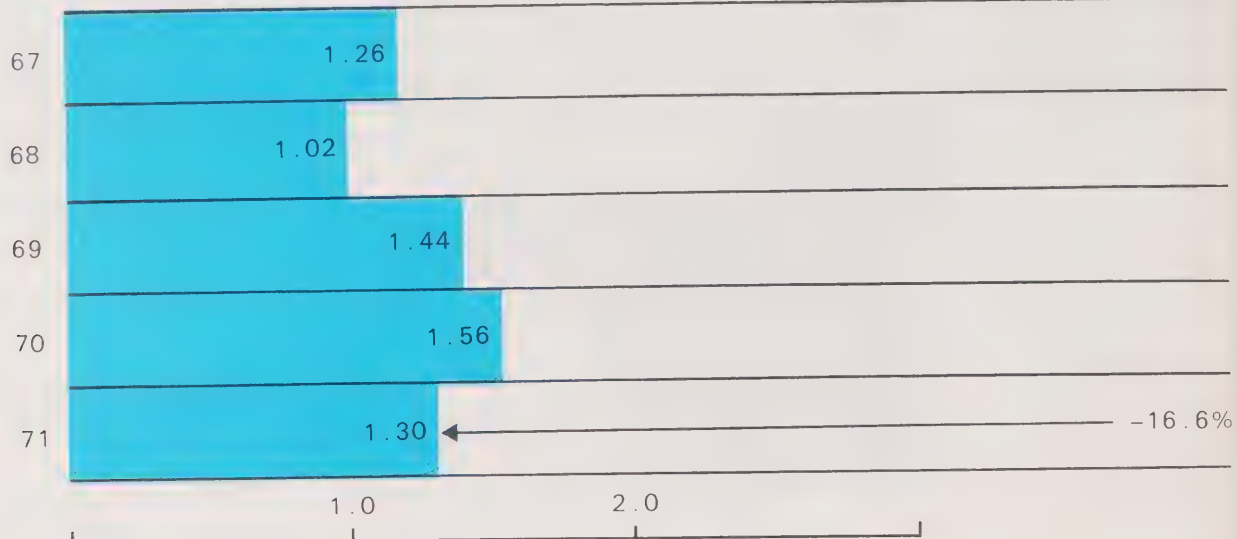


There was an increase of 11.1% in the activity;  
the accident rate increased 10.8%

### Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accidents	-	1	3	2	3
Fatal Accidents	-	-	2	1	0
% of Total Accidents for year	0	Neg	0.60	0.40	0.5
Total Hours Flown	281,562	289,598	274,354	262,893	292,243
% of Total Hours for year	11.25	11.18	10.61	9.98	10.37
Accident Rate	-	0.035	0.109	0.076	0.068
No. of PAX Carried (Millions)	5.6	5.79	6.39	7.11	7.88

## SPECIALTY TRAINING AND RECREATION



The activity increased by 28.2% over 1970;  
the accident rate declined 16.6%.

### Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accid	57	49	61	57	61
Fatal Accidents	8	5	7	6	7
% of Total Accids for year	12.08	10.58	12.13	10.75	11.55
Total Hours Flown	451,126	480,999	422,816	364,851	467,856
% of total for year	18.02	18.54	16.35	13.85	16.60
Accids/10,000 hours	1.26	1.02	1.44	1.56	1.30

## SPECIALTY OTHERS



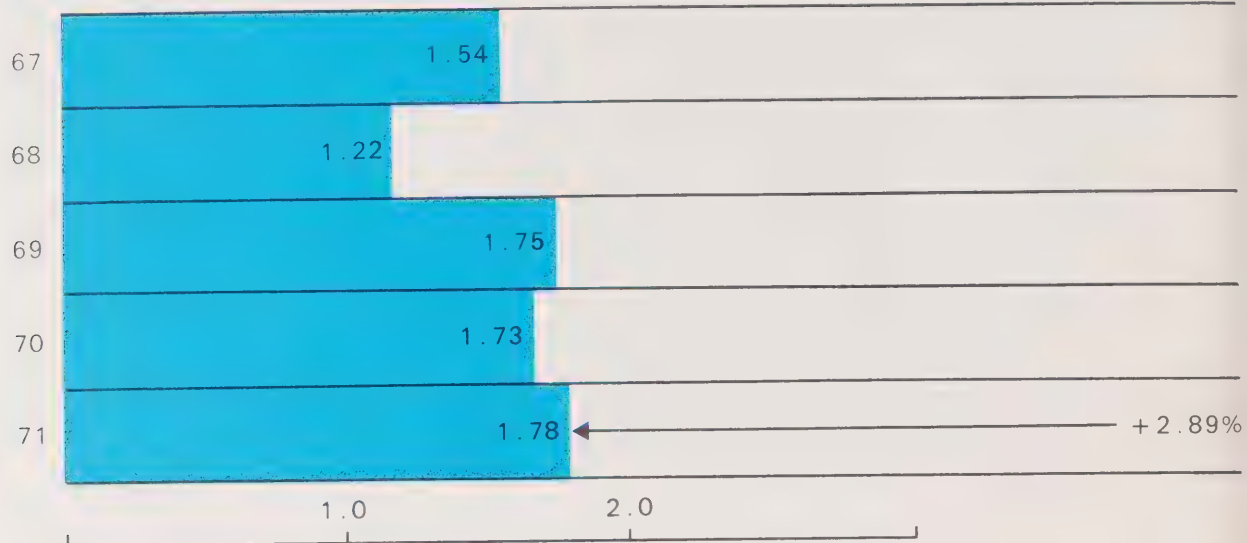
The activity rose 5% and the accident rate increased 67%.

### Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accid.	28	21	31	24	42
Fatal Accidents	3	2	2	5	4
% of Total Accidents for year	5.93	4.54	5.77	4.53	7.82
Total hours flown	99,368	93,507	103,164	103,261	108,204
% of the total for year	4.07	3.61	3.99	3.92	3.84
Accids/10,000 hours	2.82	2.25	3.00	2.32	3.88



## TOTAL SPECIALTY

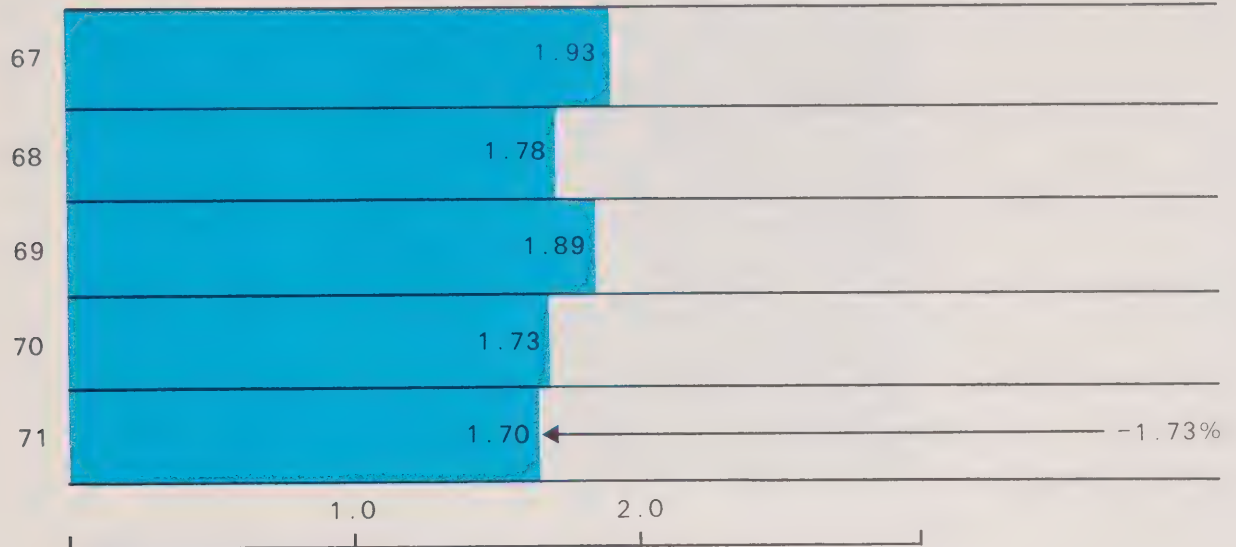


The activity increased sharply by 64% and there was an attendant increase in the accident rate of +2.89%.

### Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accid	85	70	92	81	119
Fatal Accidents	11	7	9	11	11
% of Total Accids for year	85.00	14.99	18.29	15.28	19.37
Total Hours Flown	550,494	574,006	525,980	468,112	576,060
% of the Total for Year	21.99	22.15	20.33	17.78	21.9
Accids/10,000 hours	1.54	1.22	1.75	1.73	2.06

## NON-SCHEDULED OPERATIONS

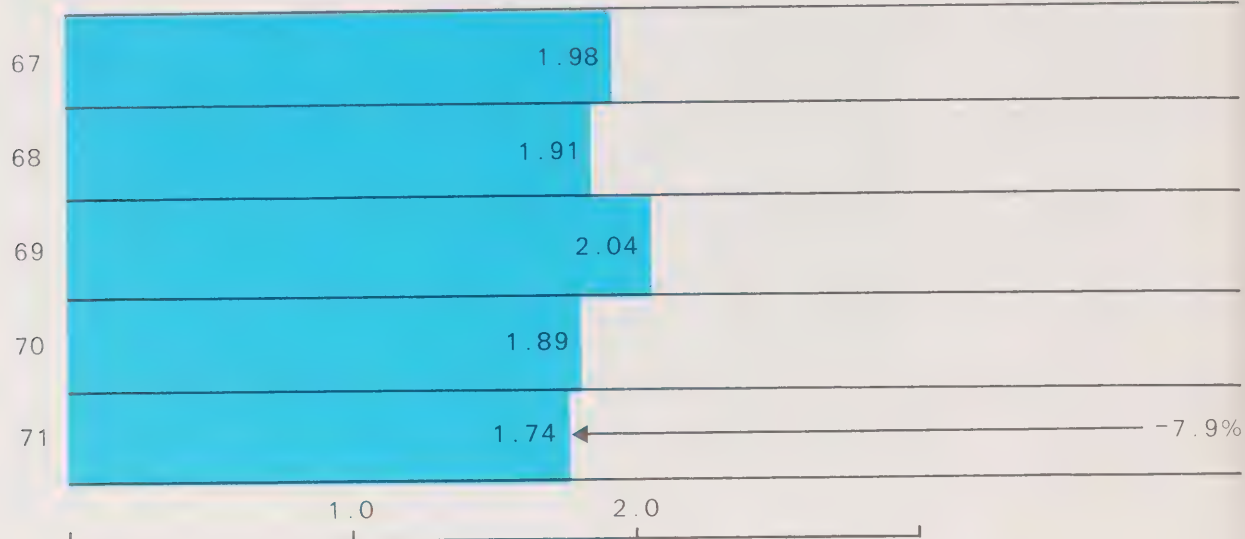


Although the activity increased by 27.5%  
the accident rate decreased 1.73%.

### Accident Rate/10,000 Hrs.

	67	68	69	70	71
Total Accidents	108	105	128	134	137
Fatal Accidents	17	15	21	7	22
% of Total Accidents for year	22.9	22.7	25.5	25.3	25.34
Total Hours Flown	558,530	590,546	678,526	774,517	802,661
% of total for year	22.31	22.79	26.23	29.41	25.27
Accidents/10,000 hours	1.93	1.78	1.89	1.73	1.70

## NON-SCHEDULED: CHARTER & CONTRACT

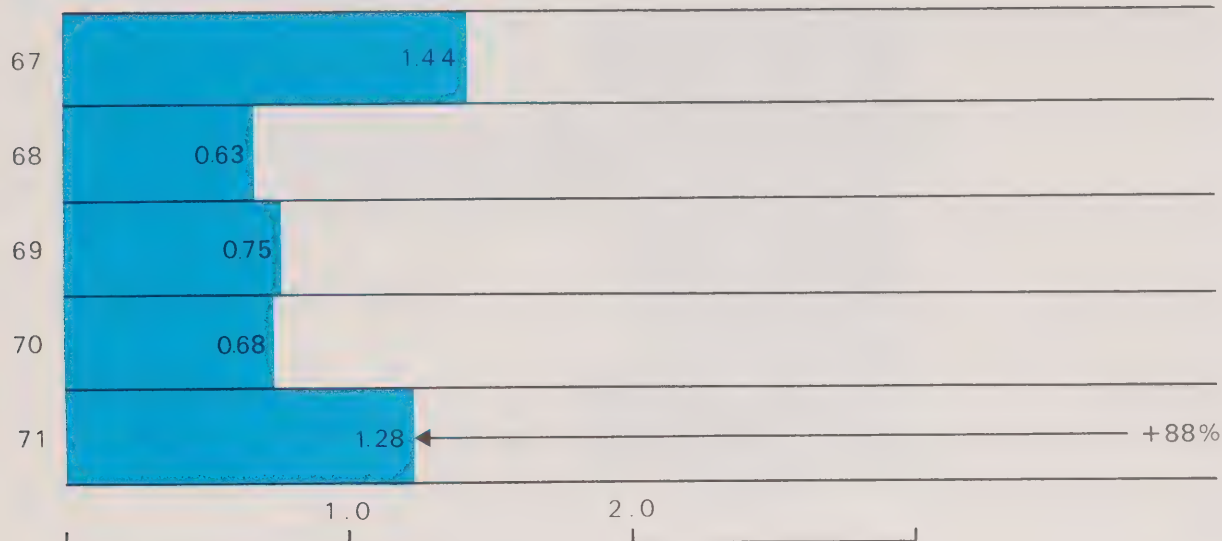


The total number of accidents decreased by one. The activity rose 7.8%, and the accident rate declined 7.9%.

### Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accidents	101	101	122	127	126
Fatal Accidents	14	14	20	6	21
% of Total Accidents for year	21.40	21.81	24.25	23.96	23.24
Total Hours Flown	509,978	527,532	598,150	671,496	724,460
% of total for year	20.37	20.36	23.12	25.50	25.71
Accidents/10,000 hours	1.98	1.91	2.04	1.89	1.75

# NON-SCHEDULED: REGULAR & IRREGULAR SPECIFIC POINT



The activity decreased by 24%; the accident rate however increased 88%.

## Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accidents	7	4	6	7	10
Fatal Accidents	3	1	1	1	2
% of Total Accidents for year	1.48	0.86	1.19	1.32	1.86
Total Hours Flown	48,552	63,014	80,376	103,021	78,201
% of total for year	1.99	2.43	3.11	3.91	2.77
Accidents/10,000 hours	1.44	0.63	0.75	0.68	1.28

## FLYING CLUBS: RECREATION & TRAINING



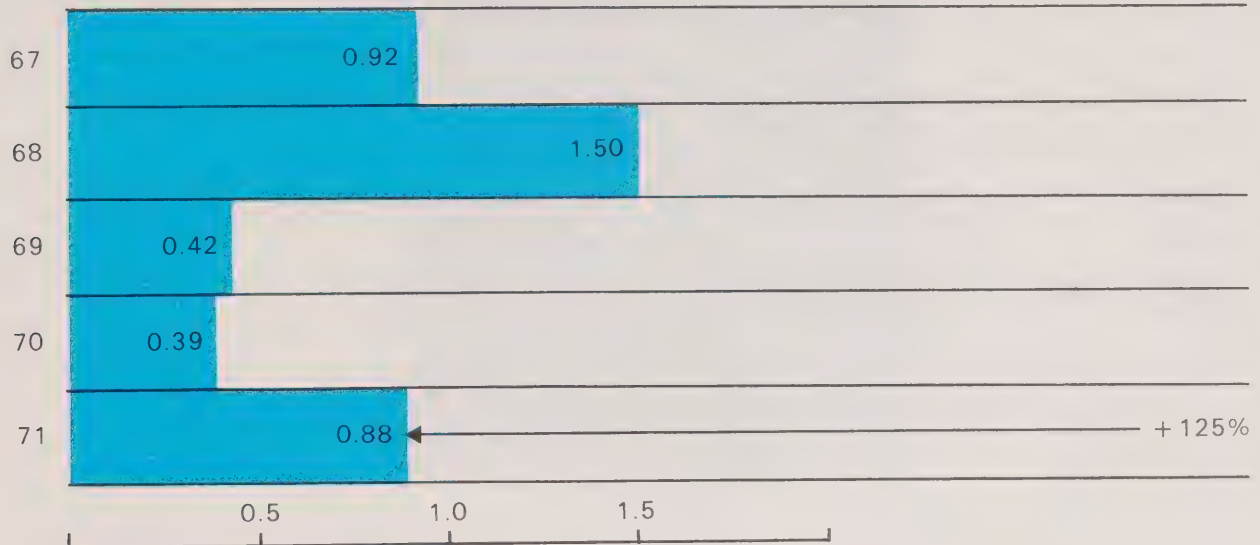
There was an increase in activity of 20.3%  
however the accident rate rose 23.3%.

### Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accid.	37	36	23	20	27
Fatal Accids.	4	2	5	1	6
% of Total Accids for year	7.84	7.11	4.57	3.77	4.98
Total Hours Flown	202,173	172,374	142,039	133,498	140,049
% of total for year	8.08	6.65	5.49	5.07	4.97
Accids/10,000 hours	1.83	2.09	1.62	1.50	1.92



## STATE OPERATIONS

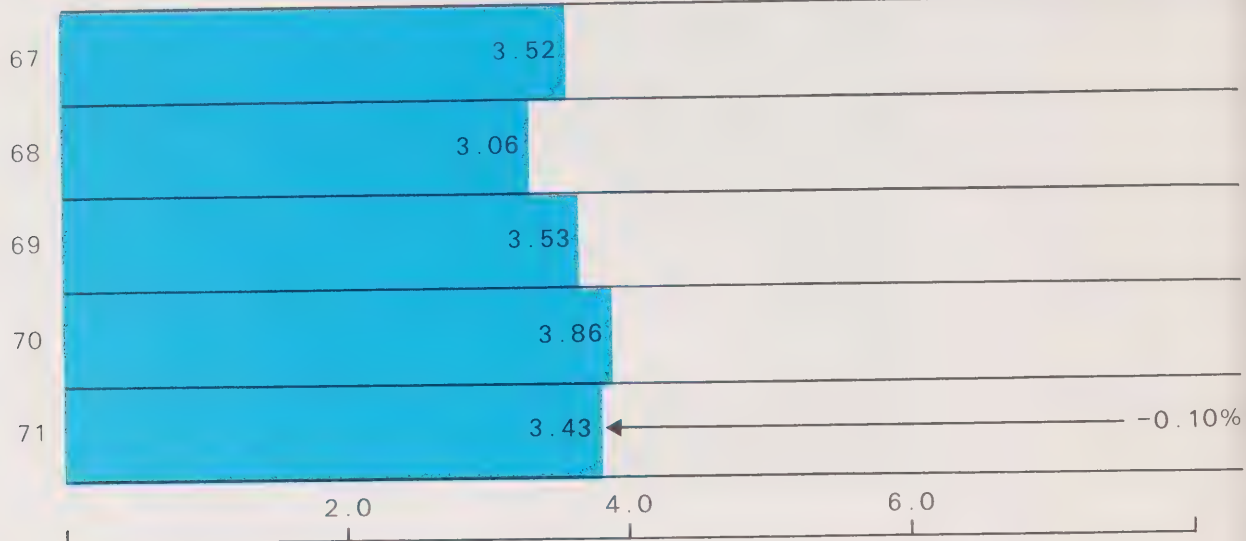


The activity in state operations increased 20.37%. There were 4 more accidents than in the previous year which produced a rate increase of 125%.

### Accident Rate/10,000 Hours

	67	68	69	70	71
Total Accid.	7	11	3	3	7
Fatal Accidents	4	2	-	-	1
% of Total Accids. for year	1.48	2.36	0.60	0.56	1.30
Total Hours Flown	76,000	73,320	75,000	76,000	79,762
% of total for year	3.04	2.83	2.90	2.89	2.83
Accids/10,000 hours	0.92	1.50	0.42	0.39	0.88
No. of State a/c with Valid C of A	190	184	186	188	219

## PRIVATE OPERATIONS



The number of accidents remained the same;  
the activity increased 5% and the rate /10000  
hours declined 0.10%.

Accident Rate/10,000 Hrs.

	67	68	69	70	71
Total Accidents	231	217	247	274	249
Fatal Accidents	43	33	25	36	34
% of Total Accids for year	48.94	45.82	49.11	51.70	45.94
Total Hours Flown	656,054	698,201	700,000	710,000	724,285
% of total for year	26.21	26.95	27.06	26.96	27.04
Accids/10,000 hours	3.52	3.06	3.53	3.86	3.43

# HELICOPTER ACCIDENTS VS HELICOPTER POPULATION

	1966	1967	1968	1969	1970	1971
Population	390	435	453	501	551	625
Accidents	62	61	66	74	68	72
Percentage of population involved in Accidents	15.8	14.0	14.5	14.8	12.3	11.5

## ACCIDENTS BY TYPE - BY PERCENT OF POPULATION ALL TYPES OF OPERATION

	1970			1971		
	Accidents	Population	%	Accidents	Population	%
Alouette Series	2	18	11.1	4	30	13.3
Bell 47 Series	38	319	11.9	30	330	9.3
Bell 204	2	11	18.1		10	
Bell 205	2	7	28.6		8	
Bell 206	6	61	9.8	13	94	13.8
Brantly Series	1	7	14.3	1	7	14.3
Hiller UH12 Series	5	39	12.8	4	39	10.2
Hiller FH-1100	5	10	50.0		9	
Hughes Series	6	52	11.5	17	69	24.6
Sikorsky S51		1			1	
Sikorsky S55		14		2	14	14.3
Sikorsky S58		2		1	7	14.3
Sikorsky S61	1	3	33.3		3	
Sikorsky S62						
Vertol 42A		3			3	
Vertol 44B		1			1	

**HELICOPTER VS AEROPLANE  
ACCIDENT AND FATAL ACCIDENT DATA**

YEAR	1967	1968	1969	1970	1971
Helicopter Accidents	61	66	74	68	72
Accidents to All Aircraft of Canadian Registry	472	460	502	530	536
Percentage of Total Accidents Which Occurred To Helicopters	12.9	14.3	14.9	12.8	13.43
Helicopter Population	435	453	501	551	625
Fixed-wing Accidents	409	387	420	458	467
Fixed-wing Population	8671	9439	10184	10679	11441
Percentage of Helicopter Population Involved In Accidents	14.0	14.5	14.9	12.3	11.5
Percentage of Fixed-wing Aircraft Involved In Accidents	4.7	4.1	4.1	4.2	4.08
Fatal Helicopter Accident	6	6	10	5	7
Fatal Fixed-wing Accident	76	63	51	52	68
Percentage of Helicopter Accidents Fatal	9.8	9.0	13.3	7.4	9.7
Percentage Fixed-wing Accidents Fatal	18.4	16.2	12.2	11.4	14.5

INCLUDES 8 GYROCOPTERS IN 1969

## AGRICULTURAL AIRCRAFT ACCIDENTS

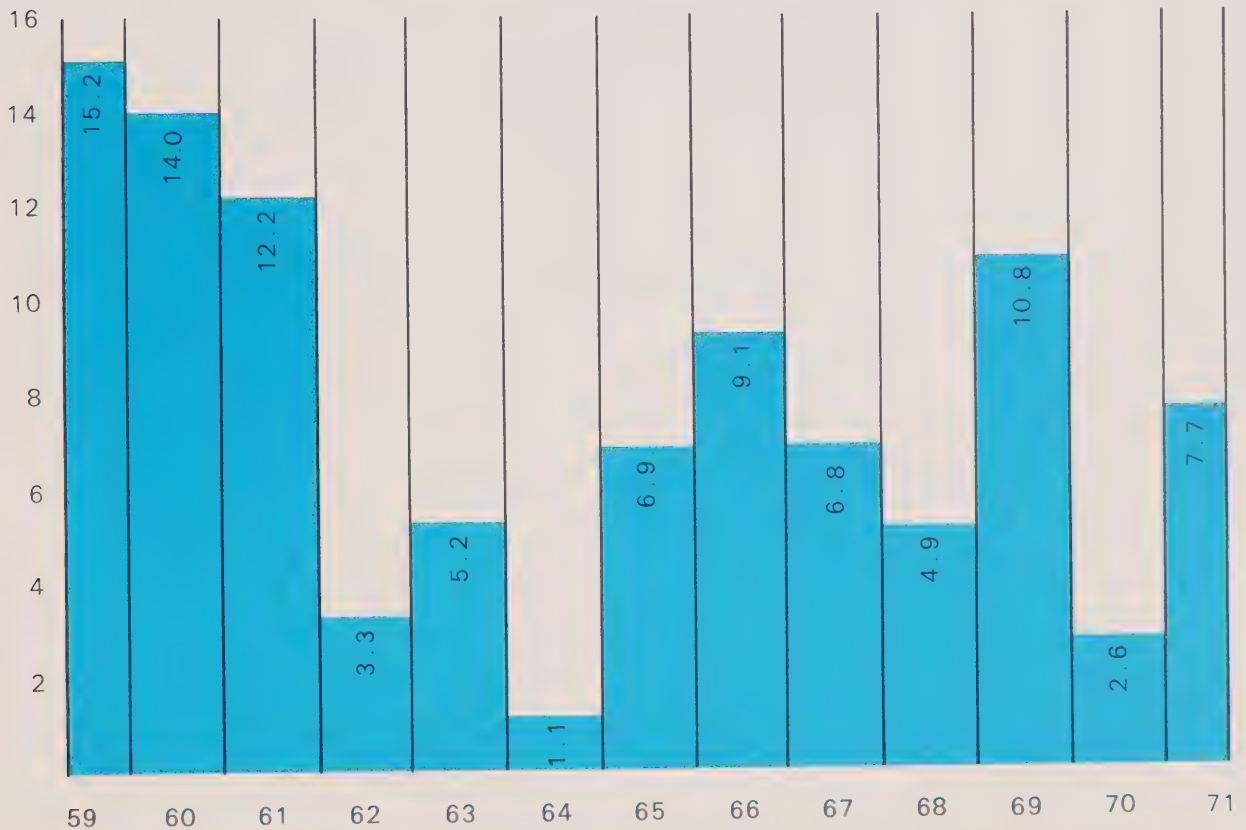
(1961 - 1971)

Total No. of Accidents		89
Damage to aircraft	Destroyed	24
	Substantial	61
	Minor	0
	None	4
	TOTAL	89
Injury Index	Fatal	14
	Serious	20
	Minor	12
	None	44
	TOTAL	90

## AERIAL APPLICATION & DISTRIBUTION

1959 - 1971

ACCIDENT RATES PER 10,000 HOURS





# GLIDER ACCIDENTS 1967 - 1971

(By type of Manufacture By type of Occurrence)

	NO. OF ACCIDENTS	TYPE OF OCCURRENCE
L. Spatz	1	Stall
Cherokee II	1	Collision - road sign
Schweizer	13	Collisions ground objects (5) Stall (3) Hard Landing (2) Air Collision (1) Dragged wingtip (1) Emergency Landing
Schreder HP11A	1	Hard Landing
Hirth Doppel Raab	2	Undershoot (1) Collision Ground (1)
Briegleb	3	Stall (1) Collision - trees (1) Spin (1)
Laister Kauffman	1	Undershoot
Schleicher K7	1	Collision - fence
Blanik L13	2	Dragged wingtip (1) Stall (1)
Bryan HP14	1	Stall
Schemp Cirrus	1	Collision - fence
Scheibe Berfalk	1	Collision - ground
Tern	1	Stall
Slingsby	1	Overshoot
Schemp Hirth	2	Groundloop (1) Overshoot (1)
Schiebe LS55	1	Collision with fence
TOTAL	33	

## GLIDER POPULATION/ACCIDENTS/ACCIDENT RATE/POPULATION

### POPULATION

YEAR	1967	1968	1969	1970	1971
COMMERCIAL	4	4	3		
PRIVATE	162	170	182	198	206
% increase		4.9%	7.05%	8.7%	4.04%
ULTRA LIGHT	35	42	44	47	47
EXPERIMENTAL	1	1			2
TOTAL	202	216	229	245	255
ACCIDENTS	5	4	7	6	9
RATE/POPULATION	247	185	305	24	35

NO ACCIDENT RATE/10000 HRS DUE TO LACK OF DATA RELATING TO ACTIVITY





Transport  
Canada

Transports  
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- A31

1972

# Aircraft Accidents Canada









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**1972**

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a  
statistical  
summary



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## NINETEEN SEVENTY TWO

There were 614 accidents to aircraft of Canadian registry of which 49.67% occurred to Commercial and 50.32% to private operators. This total accident figure represents an increase of 14.4% over 1971.

There were 46 accidents in Canada to aircraft of foreign registry of which 10 were fatal.

The total aircraft activity increased by 60873 hours and the accident rate per 10,000 hours increased by 10.9% above that of 1971 which was 8.6% above the 5 year average.

Commercial helicopter accidents increased dramatically by 30.55% over 1971 although the activity increased by only 14,700 hours (6.18%)

### Part 2 of this Document

The original philosophy which prompted the publication of this summary was to provide information to aircraft operators, their managers and to Air Associations to aid comparison of operations within the system. However, because of increased interest by other parties, a new section has been added which contains information relating to the aircraft accident itself, by type, by phase of flight, by location, etc., and summarizes specific types of accidents in narrative form.

During 1972 there were 656 aircraft accidents in Canada, of which 42 were of foreign registry.

All accidents were investigated and analysed to enable safety factors to be assigned in respect of each occurrence. The data relating to the accident environment, the aircraft, the flight crew and passenger injuries were recorded.

The Ministry of Transport has, since 1970, maintained a comprehensive computer record of the details of all accidents. It is from this data bank that the information contained in this document was extracted.

The statistical basis for aircraft accident safety reporting has been the subject of controversy for years. We have always consid-

ered accident rate in terms of thousands of hours flown. This data base was chosen some time ago as it was the only reliable information available to us from the Bureau of Aviation Statistics. This method of accident rate formulation is questionable as it heavily favours the larger carriers over operators of helicopters and of small fixed wing aircraft. As we know from experience, about 60% of all aircraft accidents occur during the landing or take-off phase; accordingly, the international or long haul operators have a distinct advantage over those engaged in shorthaul flights.

We have considered for some time that a more realistic method of accident rate reporting would be to rate the number of accidents per thousand flight departures. This would eliminate the problem mentioned above. However, in Canada, aircraft departures are recorded only at MOT operated airports and this activity represents merely a fraction of the total going on in this country.

### Comparative Statistics

Experience has demonstrated to us that the publication of safety rates between countries serves no useful purpose. It is considered that rates are useful only for actuarial purposes and tend to create misleading comparisons. Since operating environments and other conditions vary widely throughout the world, officials having executive responsibility for safety are not easily convinced with such statistics. In fact, this data tends to divert such officials from a deeper analysis of the safety situation within their respective jurisdictions. Rate statistics, on occasion, have had a detrimental effect on justifying the lack of prevention action by officials of a state which has a low accident rate. Rarely is a low rate linked with the lack of adverse operating conditions but is more usually interpreted as a measure of success of the safety program and so the professional prevention officer does not allow himself to be diverted by rate statistics.





## GLOSSARY OF TERMS

### ACCIDENT

an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, in which:

- any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or
- the aircraft receives substantial damage, is destroyed or missing.

### AIR CARRIERS

#### Charter

Air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft.

#### Contract

Air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.

#### International Scheduled

Carriers designated by the Government to operate international scheduled air services between Canada and any other State, pursuant to an international agreement or agreements to which Canada is a party.

#### Irregular Specific Point

Air carriers who offer public transportation of persons, mail and/or goods by aircraft, from a designated base, serving a defined area or a specific point or points, at a toll per unit.

#### Regular Specific Point

Air carriers who offer transportation of persons, mail and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.

### Scheduled

Air carriers who offer public transportation of persons, mail and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit.

### AIRCRAFT

any machine that can derive support in the atmosphere from reaction of the air.

### POSITIONING

a non-revenue flight for operational reasons

### SERIOUS INJURY

an injury requiring treatment, and results in suspension of normal activity for five or more days and includes

- unconsciousness
- bone fracture except simple fracture of finger or toe
- lacerations of muscles or those which cause severe hemorrhage
- injury to an internal organ
- second or third degree burns or burns on more than 5% of the body.

### SPECIALTY OPERATIONS

recreational flying, flying training, aerial photography, aerial photography and survey, aerial application and distribution, aerial inspection, reconnaissance and advertising, aerial control, aerial construction.

### UNIT TOLL

public transportation of passengers and goods at a toll per unit.

# ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT

FIXED WING 1972 OPERATION	TOTAL ACCIDS	FATAL ACCI
<b>DOMESTIC SCHEDULED</b>	1	
<b>INTERNATIONAL SCHEDULED</b>	2	
Regular Spec. Point	4	
Irregular Spec. Point	7	
Charter Group A	8	1
Charter Group B	66	14
Charter Group C	8	3
<b>CONTRACT</b>		
<b>CLUB</b>		
Recreational Flying	11	
Flying Training	9	1
<b>SPECIALTY</b>		
Recreational Flying	38	8
Flying Training	39	
Aerial Photography		
Aerial Photo & Survey		
A. Application & Dis.	5	
A. Insp., Rec. & Adv.	2	1
Aerial Control	1	
Aerial Construction		
Air Ambulance & Mercy		
Commercial Non-revenue	11	2
<b>STATE</b>	5	
<b>PRIVATE</b>		
Recreational Flying	212	33
Flying Training	12	1
Test	4	
Ferry	2	
Company Business	67	11
Aerial Spray	6	3
<b>TOTALS</b>	520	78



PILOT		OTHER CREW		TOTAL		PASSENGERS		THIRD PARTY		TOTALS	
K	S	K	S	K	S	K	S	K	S	K	S
	1				1						1
1	1	1	2	2	3					2	3
10	2		1	10	3	20	12		3	30	18
3				3		1	2			4	2
	1				1						1
1	1			1	1					1	1
6	4			6	4	9	6	1		16	10
	1				1						1
1	1			1	1					1	1
2				2						2	
26	17			26	17	26	11	3		55	28
1	2		1	1	3					1	3
	1				1						1
10	3	1		11	3	19	1			30	4
3				3						3	
64	35	2	4	66	39	75	32	4	3	145	74

## ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT

ROTARY WING 1972 OPERATION	TOTAL ACCIDS	FATAL ACCID
DOMESTIC SCHEDULED		
INTERNATIONAL SCHEDULED		
NON SCHEDULED		
Regular Spec. Point		
Irregular Spec. Point		
Charter Group A		
Charter Group B	6	1
Charter Group C	60	4
CONTRACT	3	
CLUB		
Recreational Flying		
Flying Training		
SPECIALTY		
Recreational Flying	3	
Flying Training	1	
Aerial Photography		
Aerial Photo & Survey	1	
A. Application & Dis.	1	
A. Insp., Rec. & Adv.	3	
Aerial Control	3	1
Aerial Construction	2	
Air Ambulance & Mercy		
Commercial Non-revenue	3	
STATE	2	
PRIVATE		
Recreational Flying	2	
Flying Training	3	
Test		
Ferry		
Company Business	1	
Aerial Spray		
TOTALS	94	6





## FIXED-WING 1973 CANADIAN REGISTERED

PRELIMINARY	TOTAL ACCIDS	FATAL ACCIDS
<b>DOMESTIC SCHEDULED</b>	3	
<b>SCHEDULED INTERNATIONAL</b>		
<b>DOMESTIC NON-SCHEDULED</b>		
Regular Specific Point	3	
Irregular Specific Point	9	2
Charter Class 4A	8	
Charter Class 4B	96	16
Charter Class 4C	5	1
Contract Class 5		
<b>FLYING CLUB</b>		
Flying Training	18	
Recreational Flying	12	2
<b>SPECIALTY</b>		
Recreational Flying	40	5
Flying Training	39	2
AP		
APS	2	
AAD	17	1
AIRA	6	2
AC	3	2
A Construction		
AAM	2	1
<b>COMMERCIAL NON-REVENUE</b>	7	1
<b>STATE AIRCRAFT</b>	3	1
<b>PRIVATE</b>		
Recreational Flying	246	25
Training	16	1
Testing	10	1
Ferry	6	1
Company Business	53	7
Aerial Spray	12	1
Other		
<b>UNKNOWN</b>		
<b>TOTALS</b>	616	72

PILOT		OTHER CREW		TOTAL		PASSENGERS		THIRD PARTY		TOTALS	
K	SI	K	SI	K	SI	K	SI	K	SI	K	SI
1	1	2		3		1	4	1		5	4
	1				1		1				2
12	4	5	1	17	5	21	10		1	38	16
1											
	1		1		2				1		3
1	1			1	1	6	1			7	2
3	3		1	3	4	5	2			8	6
2		1		3		2				5	
1	3			1	3				1	1	4
1				1		1	2			2	2
2				2		1				3	
						1				1	
1	2			1	2	1				2	2
1				1		3				4	
20	14			20	14	14	9	2	1	36	24
		1									
1	1			1	1		1			1	2
1				1						1	
5	2			5	2	5	1		2	10	5
1	1			1	1					1	1
54	33	9	3	62	36	61	31	3	6	126	73

**ROTARY-WING 1973 CANADIAN REGISTERED**

<b>PRELIMINARY</b>	<b>TOTAL ACCIDS</b>	<b>FATAL ACCIDS</b>
<b>DOMESTIC SCHEDULED</b>		
<b>SCHEDULED INTERNATIONAL</b>		
<b>DOMESTIC NON-SCHEDULED</b>		
Regular Specific Points		
Irregular Specific Points		
Charter Class 4A		
Charter Class 4B	15	
Charter Class 4C	48	7
Contract Class 5		
<b>FLYING CLUB</b>		
Flying Training		
Recreational Flying		
<b>SPECIALTY</b>		
Recreational Flying	4	1
Flying Training	4	
AP		
APS	2	1
AAD	1	
AIRA	4	1
AC	3	
A Construction	2	
AAM		
<b>COMMERCIAL NON-REVENUE</b>	3	
<b>STATE AIRCRAFT</b>	3	1
<b>PRIVATE</b>		
Recreational Flying	3	
Training		
Testing		
Ferry		
Company Business	5	
Aerial Spray		
Other		
<b>UNKNOWN</b>		
<b>TOTALS</b>	<b>97</b>	<b>11</b>

PILOT		OTHER CREW		TOTAL		PASSENGERS		THIRD PARTY		TOTALS	
K	SI	K	SI	K	SI	K	SI	K	SI	K	SI

5		1		6		11	3	1		18	3
---	--	---	--	---	--	----	---	---	--	----	---

1				1		2				3	
---	--	--	--	---	--	---	--	--	--	---	--

1				1		2				3	
---	--	--	--	---	--	---	--	--	--	---	--

1				1						1	
---	--	--	--	---	--	--	--	--	--	---	--

1				1		1				2	
---	--	--	--	---	--	---	--	--	--	---	--

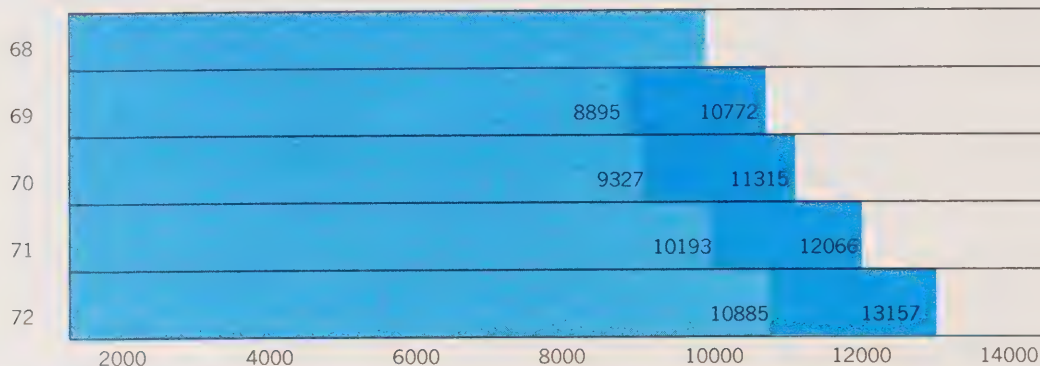
	1				1						1
--	---	--	--	--	---	--	--	--	--	--	---

9	1	1		10	1	16	3	1		27	4
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## AIRCRAFT INFORMATION

Number of Canadian Registered Aircraft; with valid C of A

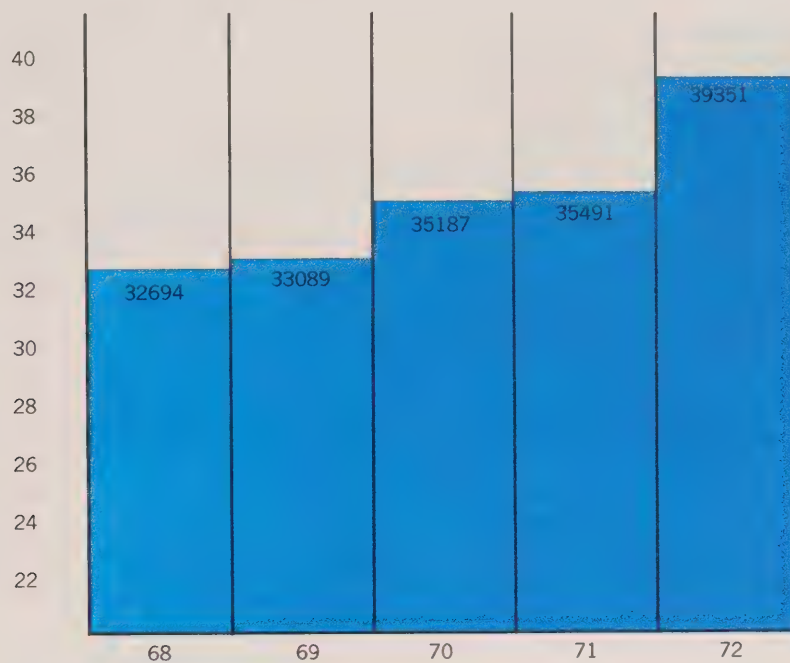


### Canadian Registered Aircraft by Classification

Private (Normal)	8552
Private (Ultra Light)	631
Private (Restricted)	39
Total	9222
Commercial (Normal)	3556
Commercial (Restricted)	126
Total	3682
State (Normal)	234
State (Experimental)	11
Total	245
Total Commercial & State	3927
Experimental	8
Grand Total	13157

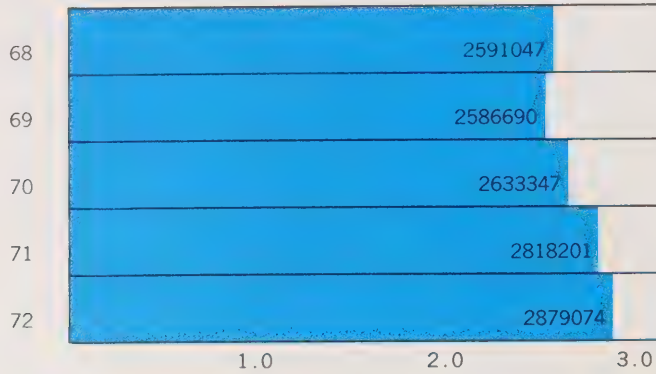
## PILOT INFORMATION

### Pilot Licences in Force 1968 — 1972

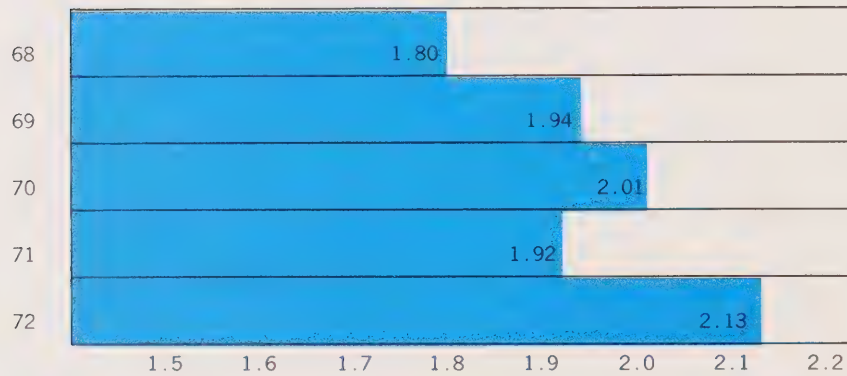


No. licences up 10.9%

Percentage of Pilot Licences by Types	No.	%
Airline Transport	3172	8.1
Senior Commercial	826	2.1
Commercial	5636	14.3
Private	28662	72.7
Glider	1095	2.8
Total	39351	

**ACCIDENT INFORMATION****Million Flying Hours**

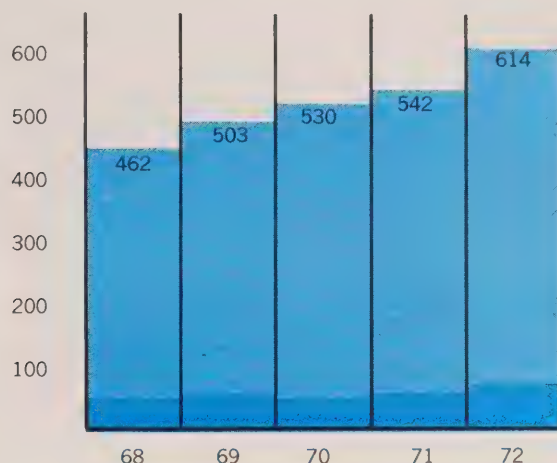
Activity in 1972 increased by 2.16%

**Accident Rate / 10000 Hours**

Accident rate    10.9% above last year's  
                     8.6% above 5 year average

## TOTAL NUMBER OF ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT

1968 — 1972 Those fatal



In 1972 the number of accidents increased by 14.4% above that of 1971

### Casualty Chart

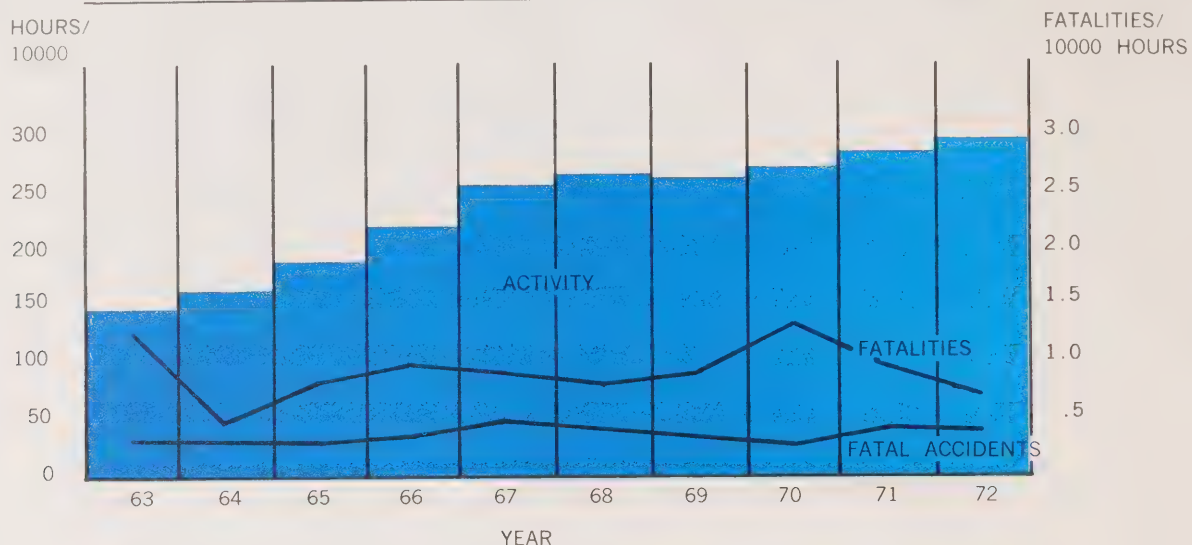
	1968	1969	1970	1971	1972
No. of Fatalities	121	140	223	157	160
No. seriously injured	64	84	88	96	83
Total casualties	185	224	311	253	243

There was a fatal accident for every 7.3 accidents in 1972  
The rate was 7.5 in 1971

### Foreign Aircraft Accidents in Canada

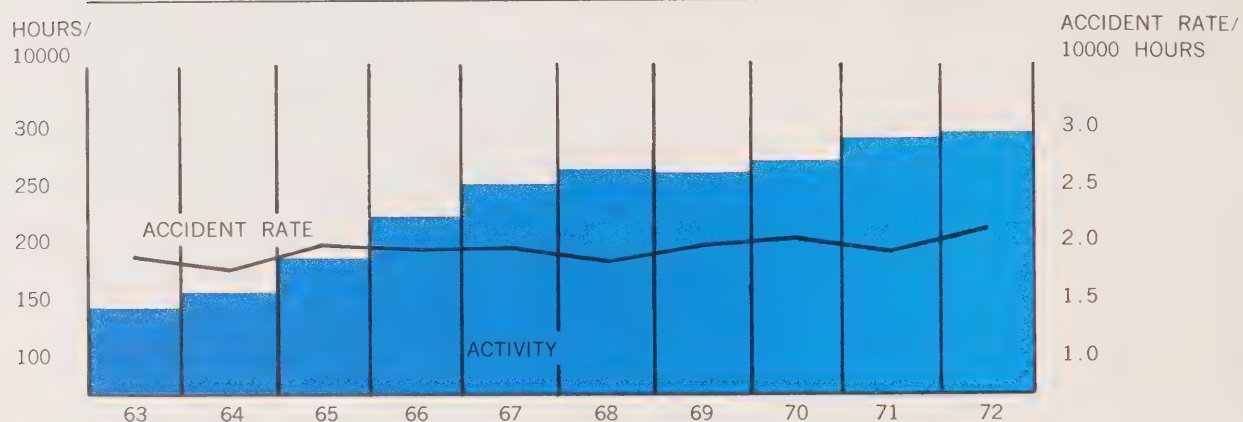
1968	36
1969	40
1970	43
1971	32
1972	46 — (10 fatal)

## FATAL ACCIDENTS PER 10000 HOURS



## ACTIVITY AND ACCIDENT RATE 1963 — 1972

### Accident Rate Per 10000 Hours



## ACCIDENT RATE BY TYPE OF OPERATION

OPERATION	NO. OF ACCID	NO. OF HOURS	ACCID/ 10000 HRS
PRIVATE	309	726000	4.26
SPECIALTY (Other)	19	94799	2.00
NON-SCHEDULED (Charter & Contract)	148	770809	1.92
SPECIALTY (Training & Recreation)	81	463449	1.75
FLYING CLUB	20	137626	1.45
STATE A/C	7	83000	0.84
NON-SCHEDULED (other)	7	99860	0.70
SCHEDULED	3	435874	0.07



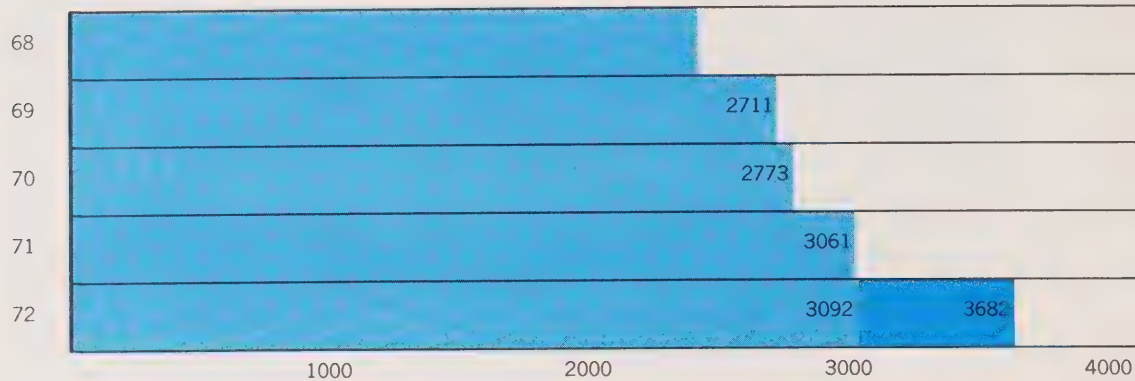
**AIRCRAFT ACCIDENTS 1972  
BY TYPE OF OPERATION BY REGION**

TYPE OF OPERATION	ATLANTIC	QUEBEC	ONTARIO	CENTRAL	WESTERN	PACIFIC
<b>DOMESTIC SCHEDULED</b>		1				
<b>SCHEDULED INTERNATIONAL</b>			1			
<b>DOMESTIC NON-SCHEDULED</b>						
Regular Specific Point		1		2	1	
Irregular Specific Point		2	1			4
Charter Class 4A		2	2		2	1
Charter Class 4B	2	20	5	23	12	10
Charter Class 4C	3	23	3	15	13	12
Contract Class 5	1				2	
<b>FLYING CLUB</b>						
Flying Training	1	2	3	1	1	
Recreational Flying		2	6	1	1	1
<b>SPECIALTY</b>						
Recreational Flying	2	7	12	5	8	6
Flying Training	1	12	12	7	2	6
AP						
APS						1
AAD	2				3	1
AIRA		4		1		
AC	1				2	1
A Construction		2				
AAM						
<b>COMMERCIAL NON-REVENUE</b>	2		1	3	4	4
<b>STATE AIRCRAFT</b>		1	2	2		2
<b>PRIVATE</b>						
Recreational Flying	9	30	58	63	33	44
Training		2	4	4	5	2
Testing	1		1	1		1
Ferry			1	1		
Company Business	5	14	13	16	15	13
Aerial Spray				5	1	
Other					3	
<b>UNKNOWN</b>						
<b>TOTALS</b>	30	125	125	150	108	109

## COMMERCIAL OPERATIONS

### NUMBER OF COMMERCIAL AIRCRAFT

WITH VALID C OF A: [REDACTED]



### TOTAL NUMBER OF COMMERCIAL, SENIOR COMMERCIAL AND AIRLINE TRANSPORT LICENSES

1968	7896
1969	7995
1970	8458
1971	8577
1972	9634*

\*INCREASE OF 12.3%

# INTERNATIONAL SCHEDULED FLIGHT DATA

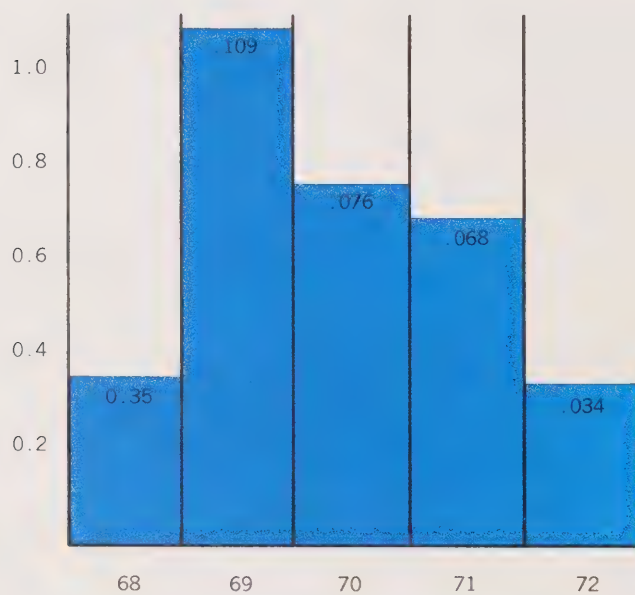
(There were 2 accidents to International Scheduled Flights during 1972)

	68	69	70	71	72
TOTAL ACCIDENTS	—	—	2	2	2
FATAL ACCIDENTS	—	—	1	0	0
TOTAL NO. HOURS FLOWN	134311	134305	143179	142432	140214
% OF TOTAL HOURS FOR YEAR	5.2	5.2	5.4	5.1	4.9
ACCIDENT RATE 10,000 HOURS	—	—	0.14	0.13	0.14
NO. OF PAX CARRIED (Millions)	2.42	2.40	2.72	2.87	3.14



## DOMESTIC SCHEDULED FLIGHT DATA

	68	69	70	71	72
TOTAL ACCIDENTS	1	3	2	2	1
FATAL ACCIDENTS	-	2	1	0	0
% OF TOTAL ACCIDENTS FOR YEAR	Negl.	0.60	0.40	0.5	Negl.
TOTAL HOURS FLOWN	289598	274354	262893	292243	295,660
% OF TOTAL FOR YEAR	11.18	10.61	9.98	10.37	10.25
ACCIDENTS/10,000 HOURS	.035	0.109	0.076	0.068	0.034
NO. OF PAX CARRIED (Millions)	5.79	6.39	7.11	7.88	8.93



The activity was up 1.17% in 1972.

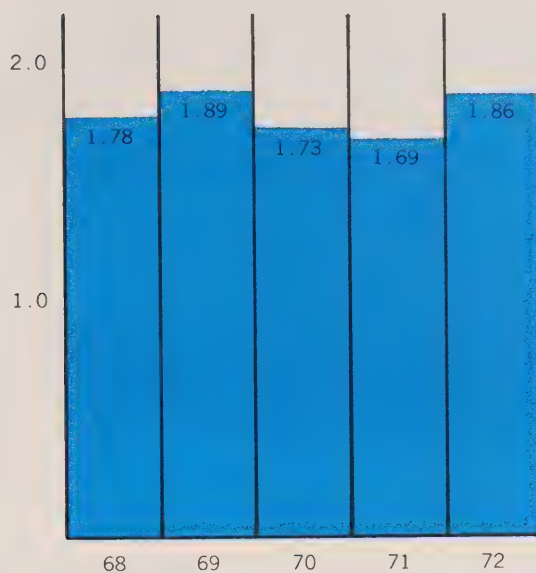
There was 1 accident in 1972 compared with 2 in 1971.



# **TOTAL NON-SCHEDULED OPERATIONS**

	<b>68</b>	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>
Total Accidents	105	128	134	136	162
Fatal Accidents	15	21	7	22	23
% of Total Accidents for year	22.7	25.5	25.3	25.3	26.4
Total No. Hours Flown	590546	678526	774517	802661	870669
% of Total for year	22.8	26.2	29.4	25.3	30.2
Accidents/10,000 Hours	1.78	1.89	1.73	1.69	1.86

Accident Rate/  
10,000 Hours



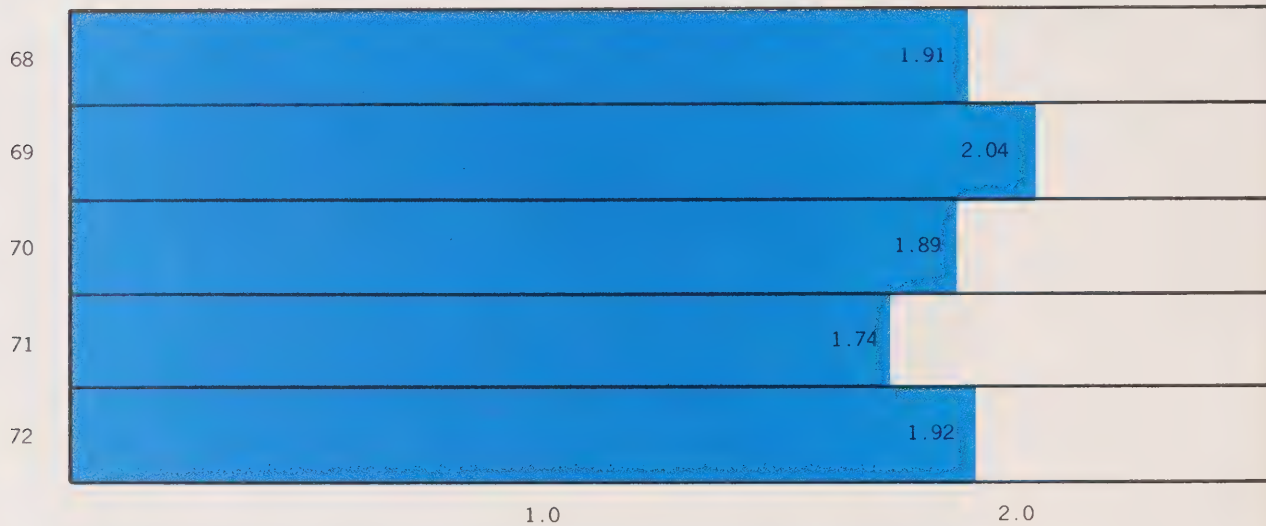
Activity 8.5% above last  
year's

Accident Rate  
10.1% above last year's  
3.9% above 5 year average.



# NON-SCHEDULED CHARTER AND CONTRACT

	68	69	70	71	72
Total Accidents	101	122	127	126	148
Fatal Accidents	14	20	6	21	23
% of Total for year	21.81	24.25	23.96	23.24	24.14
Total No. Hours Flown	427532	598150	671496	724460	770809
% of Total for year	20.36	23.12	25.50	25.71	26.80
Accidents/10,000 Hours	1.91	2.04	1.89	1.75	1.92



Activity 6.3% above last year's

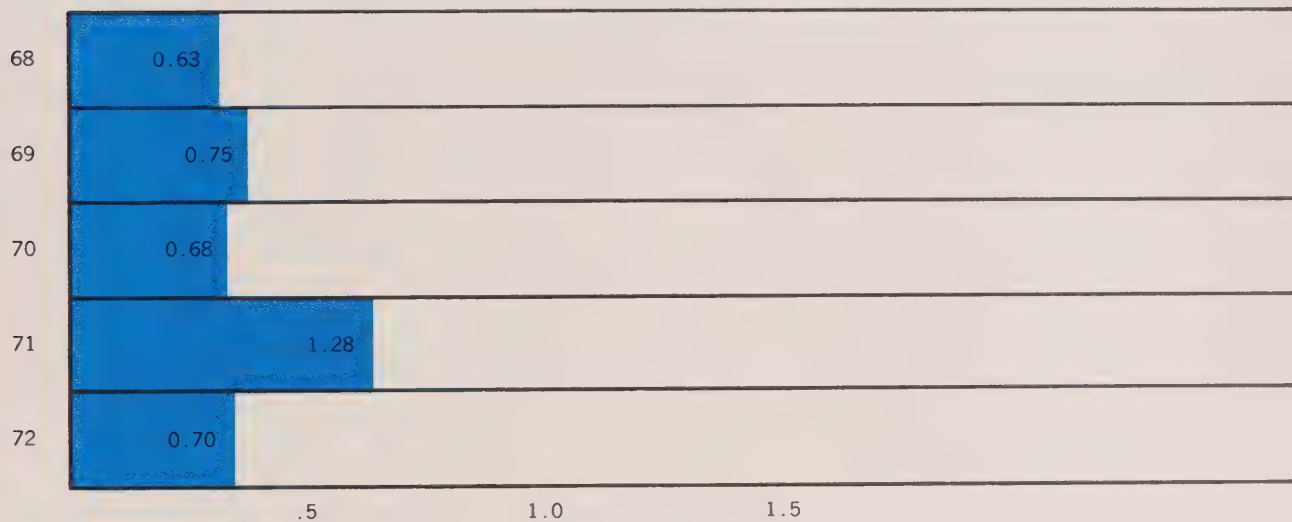
Accident Rate

9.7% above last year's

1.0% above 5 year average

# **NON SCHEDULED OTHER (Regular and Irregular Specific Points)**

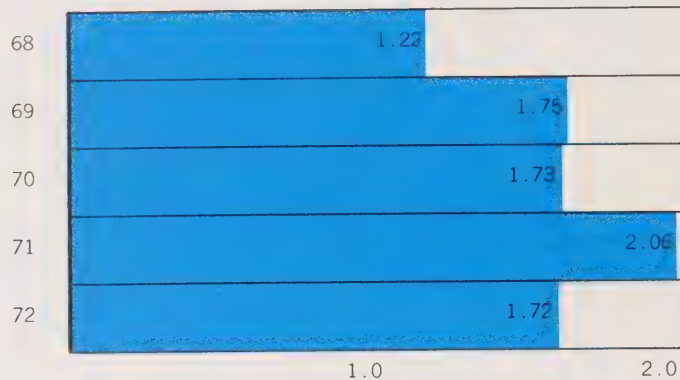
	<b>68</b>	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>
Total Accidents	4	6	7	10	7
Fatal Accidents	1	1	1	2	0
% of Total for year	0.86	1.19	1.32	1.86	1.14
Total No. Hours Flown	63014	80376	103021	78201	99860
% of Total for year	2.43	3.11	3.91	2.77	3.47
Accidents/10,000 Hours	0.63	0.75	0.68	1.28	0.70



Activity 27.7% above last year's

Accident Rate  
 45.3% below last year's  
 13.4% below 5  
 year average

## TOTAL SPECIALTY



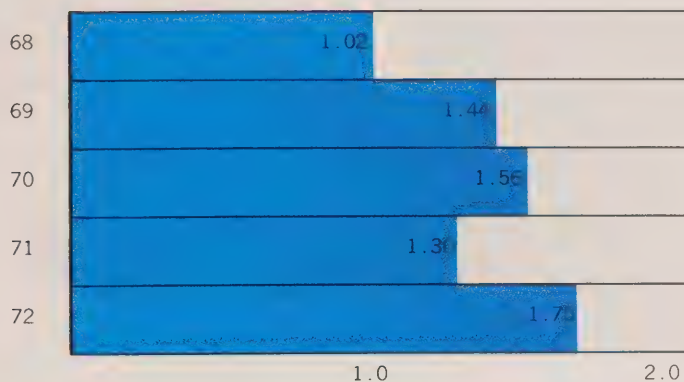
Activity 3.1% below Last Year's

Accident rate 11.5% below last year's

1.2% below 5 year average

	68	69	70	71	72
TOTAL ACCIDENTS	70	92	81	119	96
FATAL ACCIDENTS	7	9	11	11	11
% OF TOTAL ACCID FOR YEAR	14.99	18.29	15.28	19.37	15.66
TOTAL NO. OF HOURS FLOWN	574000	525980	468112	576060	558248
% OF TOTAL FOR YEAR	22.15	20.33	17.78	21.90	19.38
ACCIDENTS/10000 HOURS	1.22	1.75	1.73	2.06	1.72

## SPECIALTY: TRAINING AND RECREATION



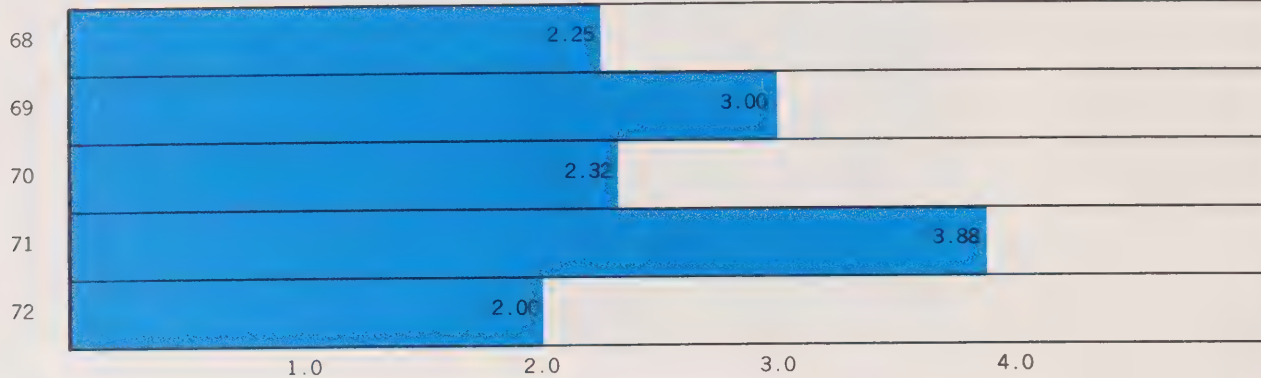
Activity 0.9% below last year's

Accident rate 34.6% above last year's

24.1% above 5 year average

	68	69	70	71	72
TOTAL ACCIDENTS	49	61	57	61	81
FATAL ACCIDENTS	5	7	6	7	8
% OF TOTAL ACCID FOR YEAR	10.58	12.13	10.75	11.55	13.21
TOTAL NO. OF HOURS FLOWN	480423	422816	364851	467856	463449
% OF TOTAL FOR YEAR	18.54	16.35	13.85	16.60	16.10
ACCIDENTS/10000 HOURS	1.02	1.44	1.56	1.30	1.75

## SPECIALTY: OTHERS



Activity 12.3% below last year's  
 Accident Rate 48.5% below last year's  
 25.7% below 5 year average

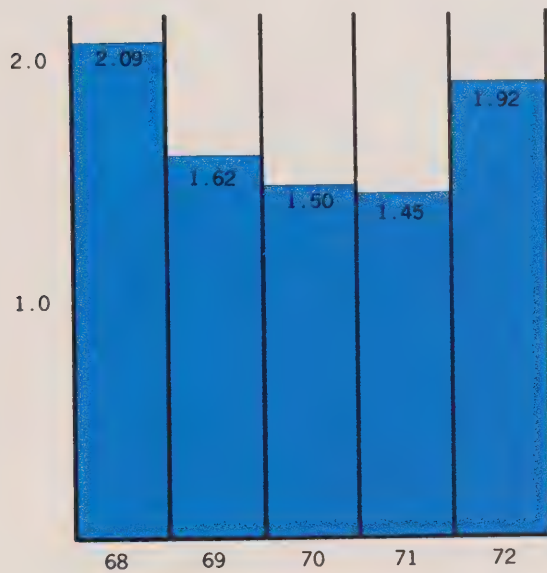
	69	69	70	71	72
TOTAL ACCIDENTS	21	31	24	42	19
FATAL ACCIDENTS	2	2	5	4	3
% OF TOTAL ACCID FOR YEAR	4.54	5.77	4.53	7.82	3.01
TOTAL NO. OF HOURS FLOWN	93507	103264	103261	108204	94799
% OF TOTAL FOR YEAR	3.61	3.99	3.92	3.92	3.29
ACCIDENTS/ 10,000 HOURS	2.25	3.00	2.32	3.88	2.00



# FLYING CLUBS: Recreation and Training

	68	69	70	71	72
Total Accidents	36	23	20	27	20
Fatal Accidents	2	5	1	6	1
% of Total Accidents for year	7.11	4.57	3.77	4.98	3.26
Total No. Hours Flown	172374	142039	133498	140049	137626
% of Total for year	6.65	5.49	5.07	4.97	4.78
Accidents/10,000 Hours	2.09	1.62	1.50	1.92	1.45

Accident Rate/  
10,000 Hours



Activity 1.7% below last year's

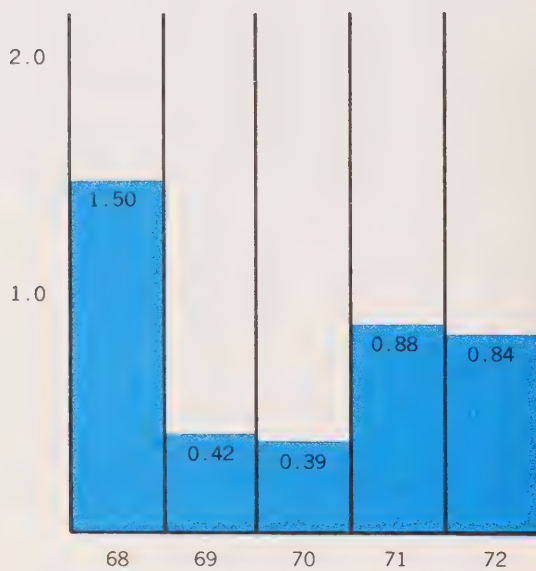
Accident Rate

24.5% below last year's

15.7% below 5 year average

## STATE OPERATIONS

	68	69	70	71	72
Total Accidents	11	3	3	7	7
Fatal Accidents	2	-	-	1	-
% of Total Accidents for year	2.36	0.60	0.56	1.30	1.14
Total No. Hours Flown	73320	75000	76000	79762	83000
% of Total for year	2.33	2.90	2.89	2.83	2.88
Accidents/10,000 Hours	1.50	0.42	0.39	0.88	0.84
No. of State a/c with valid C of A	1.84	1.66	1.88	2.19	2.45



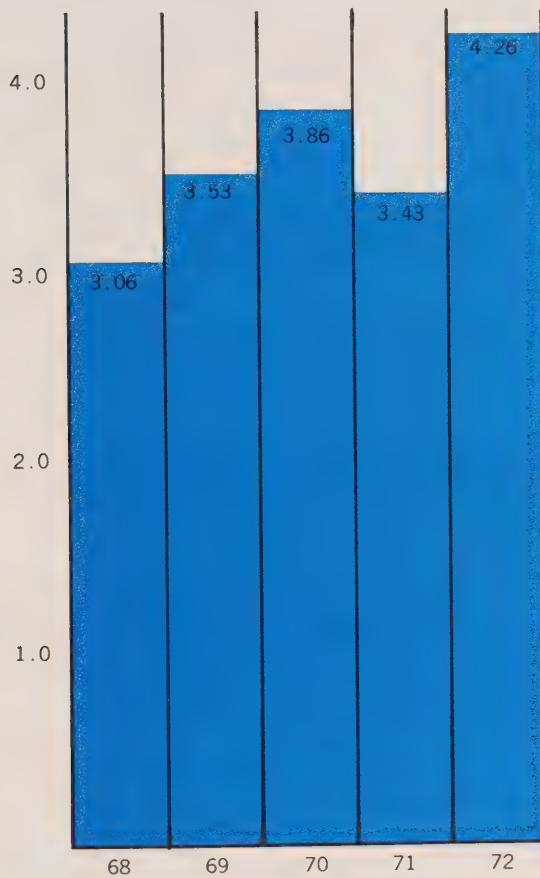
Activity 4.1% above  
last year's

Accidents Rate  
4.5 below last year's  
3.7 below 5 year average

## PRIVATE OPERATIONS

	68	69	70	71	72
Total Accidents	214	247	274	249	309
Fatal Accidents	33	25	36	34	48
% of Total Accidents for year	45.82	49.11	51.70	45.94	50.32
Total No. Hours Flown	698201	700000	710000	724285	726000
% of Total for year	26.95	27.06	26.96	27.04	25.22
Accidents/10,000 Hours	3.06	3.53	3.86	3.43	4.26

Accident Rate/  
10,000 Hours



Activity 0.24% above last year's

Accident Rate  
24.2% above last year's  
17.4% above 5 year average

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**HELICOPTER ACCIDENTS BY TYPE OF OPERATION**


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YEAR	COMMERCIAL	STATE	PRIVATE
1962	34	—	5
1963	33	—	3
1964	31	3	—
1965	41	2	9
1966	52	1	9
1967	54	3	4
1968	56	6	3
1969	69	2	4
1970	59	1	7
1971	69	1	2
1972	85	2	6

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**Commercial Helicopter Accidents**


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Total Accidents	85
Fatal Accidents	6
% Total Accid/year	13.9
Total Hours Flown	252519
% of Total for year	13.84
Accid/10,000 Hours	3.36

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# HELICOPTER ACCIDENTS VS HELICOPTER POPULATION

	1966	1967	1968	1969	1970	1971	1972
POPULATION	390	435	453	501	551	625	712
ACCIDENTS	62	61	66	74	68	72	94
% INVOLVED IN ACCIDENTS	15.8	14.0	14.5	14.8	12.3	11.5	13.1

## ACCIDENTS BY TYPE — BY PERCENT OF POPULATION ALL TYPES OF OPERATION

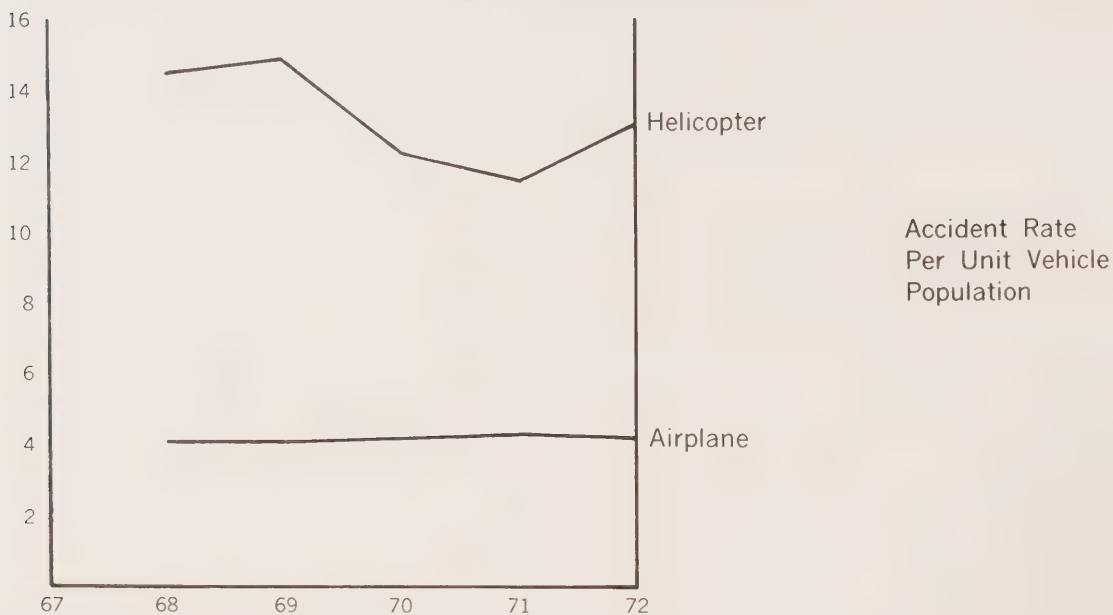
	ACCIDENTS	POPULATION	1971 %	ACCIDENTS	POPULATION	1972 %
BELL 47	30	330	9.3	42	320	13.1
BELL 204	0	10		0	10	
BELL 206	13	94	13.8	19	157	12.1
BELL 205	0	8		3	11	27.3
HILLER UH12	4	39	10.2	3	31	9.7
HILLER FH-1100	0	9		1	7	14.3
BRANTLY	1	7	14.3	0	6	
HUGHES	17	69	24.6	12	83	14.5
SIKORSKY S55	2	14	14.3	3	14	21.4
SIKORSKY S58	1	7	14.3	1	8	12.5
SIKORSKY S62	0			0	1	
SIKORSKY S51	0	1		0	2	
SIKORSKY S61	0	3		1	3	33.3
VERTOL 42A	0	3		0	3	
VERTOL 44B	0	1		0	2	
ALOQUETTE SERIES	4	30	13.3	6	45	13.3
BENSON B8M				2	90	2.2



# HELICOPTER VS AEROPLANE ACCIDENT AND FATAL ACCIDENT DATA

	1968	1969	1970	1971	1972
HELICOPTER ACCIDENTS	66	74	68	72	94
ACCIDENTS TO ALL AIRCRAFT OF CANADIAN REGISTRY	460	502	530	536	613
PERCENTAGE OF TOTAL WHICH OCCURRED TO HELICOPTERS	14.3	14.9	12.8	13.4	15.2
HELICOPTER POPULATION	453	501	551	625	712
FIXED-WING ACCIDENTS	387	420	458	493	520
FIXED WING POPULATION	9439	10184	10679	11441	12442
PERCENTAGE OF HELICOPTER POPULATION INVOLVED IN ACCIDENTS	14.5	14.9	12.3	11.5	13.1
PERCENTAGE OF FIXED WING AIRCRAFT INVOLVED IN ACCIDENTS	4.1	4.1	4.2	4.3	4.2
FATAL HELICOPTER ACCIDENTS	6	10	5	7	6
FATAL FIXED WING ACCIDENTS	63	51	52	73	78
PERCENTAGE OF HELICOPTER ACCIDENTS FATAL	9.0	13.3	7.4	9.7	6.5
PERCENTAGE FIXED WING ACCIDENTS FATAL	16.2	12.2	11.4	14.5	15.0

## HELICOPTER VS AIRPLANE



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## PART TWO

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## ACCIDENT DISTRIBUTION — 1972



## AIRCRAFT ACCIDENTS IN CANADA BY REGION

YEAR	1968	1969	1970	1971	1972
PACIFIC	107	100	101	96	109
WESTERN	94	106	98	110	110
CENTRAL	97	97	121	112	152
ONTARIO	95	103	123	106	123
QUEBEC	66	82	102	111	125
ATLANTIC	24	28	26	27	30

1972 TOTAL INCLUDES 46 FOREIGN REGISTERED A/C



## SEASONAL ACCIDENT SUMMARY

## Percentage of Total Accidents by Time of Year

JAN — FEB	10.61%
MAR — APR	12.27%
MAY — JUNE	21.52%
JUL — AUG	28.33%
SEP — OCT	16.67%
NOV — DEC	10.61%

## NUMBER OF ACCIDENTS BY MONTH OF OCCURRENCE

YEAR	1968	1969	1970	1971	1972
JANUARY	32	22	27	41	31
FEBRUARY	30	27	41	31	39
MARCH	35	21	38	48	47
APRIL	48	31	40	43	34
MAY	44	44	67	35	65
JUNE	47	76	81	70	77
JULY	51	71	76	62	91
AUGUST	56	80	51	83	96
SEPTEMBER	49	47	46	54	61
OCTOBER	41	32	38	41	49
NOVEMBER	27	38	15	33	42
DECEMBER	29	32	33	35	28

INCLUDES FOREIGN OWNED AIRCRAFT (46 ACCID.)



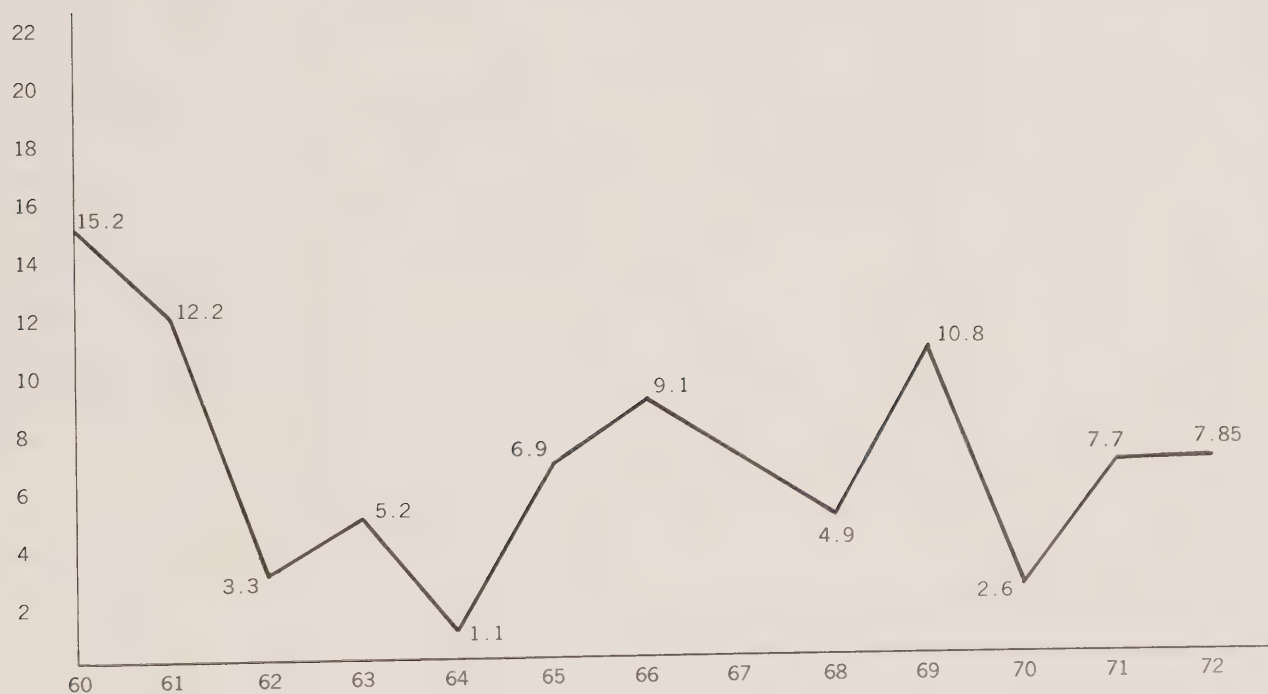
### AIRCRAFT ACCIDENT DAMAGE PATTERN

	1970	1971	1972
Total Accidents	571	568	657
<b>Aircraft Damage</b>			
Destroyed	57	82	83
% destroyed	9.98	14.43	12.63
Substantial	494	466	539
% substantial	86.35	82.04	82.04
Minor	8	7	17
% minor	1.22	1.23	2.59
Undamaged	7	11	15
% undamaged	1.25	1.93	2.28
Unknown (disappeared)	5	7	3
% unknown	0.90	1.23	0.46

Includes foreign registered aircraft.

### AERIAL APPLICATION AND DISTRIBUTION 1960 — 1971

Accident Rates Per 10,000 Hours

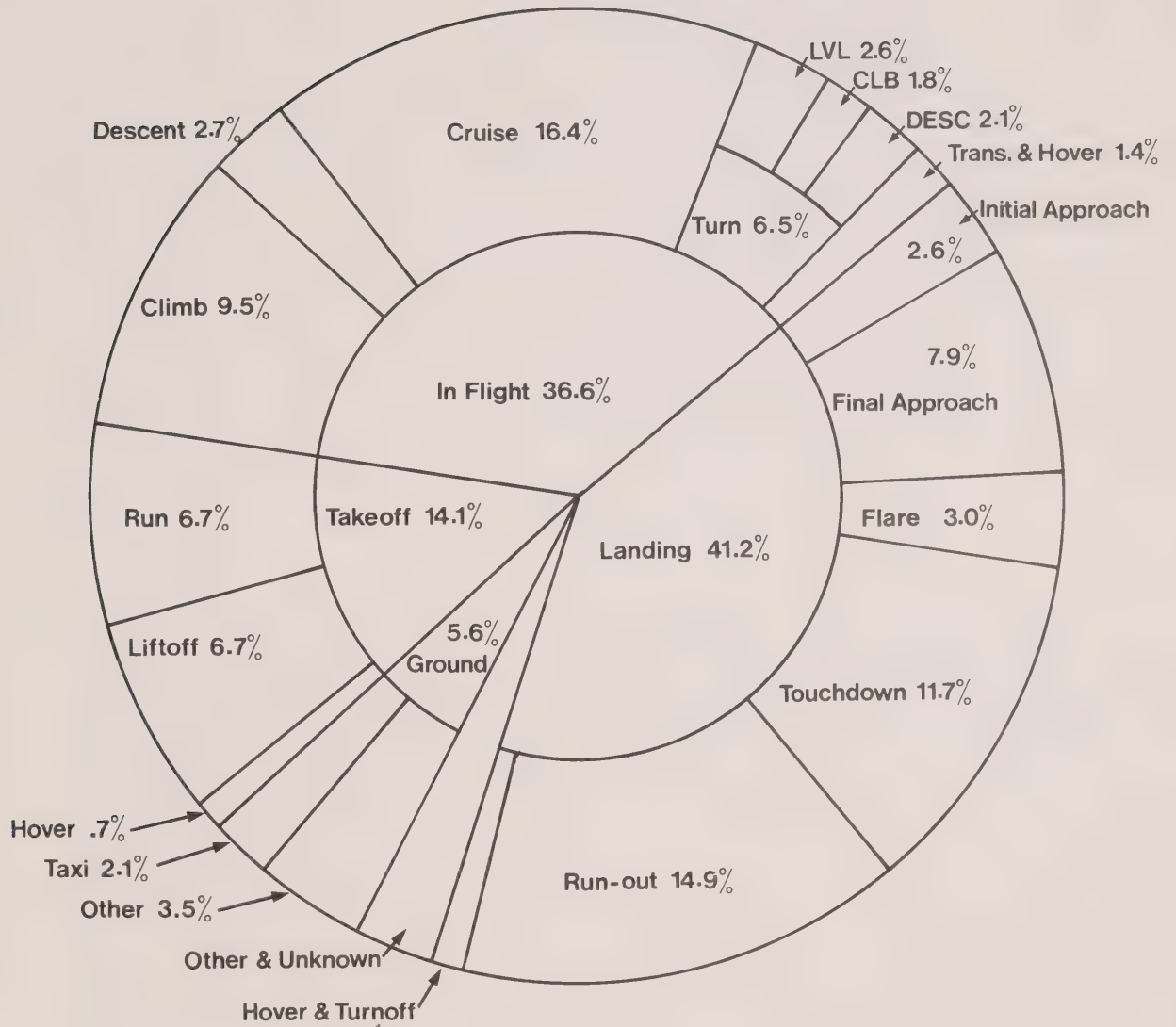


## ACCIDENTS BY PHASE OF FLIGHT

1970-1972 (INCLUSIVE)

Phase	1970 (571 Accidents)		1971 (568 Accidents)		1972 (660 Accidents)	
	Freq.	% Total	Freq.	% Total	Freq.	% Total
<b>Ground</b>						
Start-up	5	0.87	9	1.58	3	0.45
Stationary	2	0.35	6	1.05	8	1.20
Taxiing	22	3.80	19	3.33	14	2.10
Air taxiing	—	—	1	0.17	4	0.60
Step taxiing	3	0.57	3	0.52	—	—
Beaching	1	0.17	—	—	—	—
Mooring	4	0.70	—	—	—	—
Docking	3	0.57	3	0.52	3	0.45
Shut-down	2	0.35	2	0.35	3	0.45
Parking	—	—	2	0.35	1	0.15
Ramping	—	—	—	—	1	0.15
<b>Takeoff</b>						
Line up	3	0.57	1	0.17	—	—
Run	32	5.60	34	5.90	44	6.70
Lift off	36	6.30	51	8.90	44	6.70
Hover	3	0.57	3	0.52	5	0.70
Climb	75	13.3	57	10.03	63	9.5
Descent	16	2.8	12	2.11	18	2.7
Cruise	87	15.2	97	17.07	108	16.4
Level Turn	15	2.6	12	2.11	17	2.6
Climbing Turn	15	2.6	20	3.5	12	1.8
Descending Turn	7	1.2	10	1.7	14	2.1
Translation	5	0.87	4	0.7	3	.45
Hover	2	0.35	—	—	6	.91
<b>Landing</b>						
Initial Approach	5	0.87	15	2.6	17	2.6
Final Approach	36	6.3	37	6.5	52	7.9
Flare	28	4.9	15	2.64	20	3.0
Hover	4	0.70	4	0.70	6	.91
Touchdown	60	10.5	58	10.21	77	11.7
Run Out	89	15.5	81	14.26	98	14.9
Turn Off	1	0.67	2	0.35	2	.3
<b>Other</b>						
Load Pick-Up	2	0.35	4	0.70	—	—
Load Drop	3	0.57	1	0.17	4	.6
Unknown	5	0.87	4	0.70	13	1.8

## ACCIDENTS BY PHASE OF FLIGHT



**ACCIDENTS BY TYPE OF ACCIDENT**  
1970 — 72

TYPE OF ACCIDENT	SOUTH OF 60°N		NORTH OF 60°N		TOTAL	
	No.	%	No.	%	No.	%
Mush	12	0.7	—	—	12	0.7
Fire in Flight	7	0.4	1	0.7	8	0.4
Fire on Ground	5	0.3	2	1.3	7	0.4
Airframe Failure in Flight	12	0.7	—	—	12	0.7
Airframe Failure on Ground	1	0.1	—	—	1	0.1
Engine Failure/Malfunction	148	9.1	18	12.1	166	9.3
Propeller Failure	2	0.1	—	—	2	0.1
Tail Rotor Failure	3	0.2	—	—	3	0.2
Main Rotor Failure	2	0.1	—	—	2	0.1
Undetermined	6	0.4	—	—	6	0.3
Prop/Jet/Rotor Blast	1	0.1	—	—	1	0.1
Turbulence	8	0.5	1	0.7	9	0.5
Prop/Rotor Acc. to Person	22	1.3	4	2.7	26	1.5
Missing A/C Not Recovered	NOT KNOWN				6	0.3
Other/Miscellaneous	16	1.0	2	1.3	18	1.0
Ground/Water Loop/Swerve	162	9.9	11	7.4	173	9.7
Dragged Wing Tip/Pad/Float	31	1.9	1	0.7	32	1.8
Wheels-up Landing	21	1.3	1	0.7	22	1.2
Wheels-Down Landing in Water	6	0.4	—	—	6	0.3
Gear Collapsed	65	4.0	7	4.7	72	4.0
Gear Retracted	8	0.5	1	0.7	9	0.5
Hard Landing	126	7.7	10	6.7	136	7.6
Nose Over/Down	109	6.5	10	6.7	119	6.7
Roll Over	27	1.7	6	4.0	33	1.8
Overshoot	97	5.9	7	4.7	104	5.8
Undershoot	34	2.1	3	2.0	37	2.1
Collision — Both in Flight	7	0.4	2	1.3	9	0.5
Collision — One Airborne	3	0.2	—	—	3	0.2
Collision — Both on Ground	13	0.8	—	—	13	0.7
Controlled-Collision with Ground/Water	187	11.4	26	17.4	213	11.9
Uncontrolled Collision with Ground/Water	29	1.8	3	2.0	32	1.8
Collided with Wires/Poles	50	3.1	1	0.7	51	2.9



TYPE OF ACCIDENT	SOUTH OF 60°N		NORTH OF 60°N		TOTAL	
	No.	%	No.	%	No.	%
Collided with Trees	113	6.9	9	6.0	122	6.8
Collided with Buildings	2	0.1	—	—	2	0.1
Collided with Fence/Posts	23	1.4	1	0.7	24	1.3
Collided with Runway/Approach Lights	3	0.2	—	—	3	0.2
Collided with Airport Hazard	8	0.5	1	0.7	9	0.5
Collided with Crop	2	0.1	—	—	2	0.1
Collided with Ditches	8	0.5	—	—	8	0.4
Collided with Snowbank	35	2.1	6	4.0	41	2.3
Collided with Parked A/C	4	0.2	—	—	4	0.2
Collided with Automobile	13	0.8	—	—	13	0.7
Collided with Dirt Bank	8	0.5	—	—	8	0.4
Collided with Other	30	1.8	4	2.7	34	1.9
Bird Strike	1	0.1	—	—	1	0.1
Stall	139	8.5	11	7.4	150	8.4
Spin	25	1.5	—	—	25	1.4
TOTAL	1634		149		1788	





## ACCIDENTS TO GLIDERS 1967 – 1972

DATE	MAKE AND MODEL	ACCIDENT TYPE	INJURIES	PILOT TOTAL	HOURS ON TYPE
10-00-67	L-Spatz 55	Stall	1F	101-250	0-25
23-04-07	Cherokee II	Collision-road sign	—	101-250	51-100
22-05-67	Schweizer SGS1	Collision-rising terrain	1S	35-100	25-50
10-09-67	Schreder HP11A	Hard Landing	1S	501-1000	100-300
28-05-67	Hirth Doppel Raab	Undershoot	2M	251-500	0-25
29-09-68	Briegleb BG7	Stall	1S	101-250	0-25
16-06-09	Schweizer SGS126	Hard Landing	—	Student	0-25
31-03-68	Laister Kauffman	Undershoot	—	Student	0-25
11-05-68	Schweizer SGU	Stall	1M	Student	0-25
13-04-69	Schweizer SGU222	Collision-ground	1S	251-500	51-100
07-06-69	Schweizer SGS126	Collision-wires-Poles	—	35-100	0-25
30-08-69	Schleicher K7	Collision-fence	—	1001-2000	25-50
22-06-69	Blanik L13	Wing tip landing	2M	101-250	0-25
26-07-69	Schweizer SGS126	Collision-aircraft	3F	1001-2000	301-500
28-07-69	Bryan HP14	Stall	1F	251-500	0-25
12-07-69	Doppel Raab	Collision-ground	1S	Student	0-25
25-04-70	Schemp Cirrus	Collision-fence	—	401-500	51-75
31-07-69	Scheibe Berfalke	Collision-ground	—	6-10	6-10
08-06-69	Schweizer SGU2	Dragged wingtip	—	51-75	0-5
07-08-69	Schweizer SGS126	Groundloop	—	301-400	16-25
23-08-69	Blanik L13	Stall	—	76-100	26-35
17-07-70	Tern	Stall	1F	301-400	16-25
19-07-70	Briegleb BG12A	Collision-trees	—	101-150	26-35
07-11-70	Schweizer SGS233	Stall	—	1001-1500	51-75
07-11-70	Schweizer SGS233	Stall			
02-05-71	Slingsby 3F	Overshoot	1S	151-200	6-10
16-06-71	Schempp Hirth SH1	Groundloop	—	151-200	76-100
16-06-71	Schweizer SHS233	Stall	1S	301-400	36-50
23-06-71	Brieglet BG12B	Spin	1F	51-75	16-25
30-05-71	Schweizer SGS126	Collision-ground	—	1001-1500	0-25
01-07-71	Schweizer SGS222	Hard Landing	—	6-10	6-10
16-07-71	Schempp Hirth	Overshoot	—	501-750	251-300

## ACCIDENTS TO GLIDERS 1967 — 1972

DATE	MAKE AND MODEL	ACCIDENT TYPE	INJURIES	PILOT TOTAL	HOURS ON TYPE
21-08-71	Scheibe LS55	Collision-fence	—	450	30
06-11-71	Schweitzer 233	Emergency Landing	1S	8:06	8:00
04-06-72	Fauvel AV36	Undershoot	—	100	15:35
10-06-72	Blanik L13	Collision-ground	1M	52.00	10.00
11-06-72	Cherokee II	Hard Landing	—	254.00	28.00
25-06-72	Schweitzer SGU-2	Forced Landing Following Tow- Line Break	—	?	?
02-08-72	Schweitzer SGU-2	Collision Ground	—	4	4
20-08-72	Schliecher K8-B	Intentional Groundloop	—	100	25
27-08-72	H.L. Townsend HP-141	Loss directional control-crosswind	—	506	4
03-09-72	Schweizer 2-33A	Hard Landing	—	165	9
07-09-72	Schweizer SGU2-22EK	Collision wire	—	75	50
23-09-72	Schweizer 2-22CK	Collision-trees following early tow release	—	57	18



**FLOAT PLANE ACCIDENTS**  
**January 1 1970 — September 1 1973**

**By Type/By Region**

AIRCRAFT TYPE	ATLANTIC	QUEBEC	ONTARIO	CENTRAL	WESTERN	PACIFIC	TOTAL
Aeronca 11		1	1				2
Aeronca 15			1				1
Beechcraft 18		1		1			2
Beechcraft 85		1		3			4
Boeing 75			1				1
Cessna 120		1					1
Cessna 140						1	1
Cessna 150			1		2	1	4
Cessna 170		10		2		2	14
Cessna 172	1		3	2		3	9
Cessna 175						1	1
Cessna 180	3	24	17	25	1	17	87
Cessna 185		12	7	13	4	21	57
Cessna 195						1	1
Cessna 206		3	3	1	3	1	11
Champion 7		4	2	6		1	13
DHC1						1	1
DHC2		10	4	9	3	12	38
DH2T		1		1			2
DHC3	2	1	1	7	1	2	14
DH 6			2		1	2	5
Dornier 28					1		1
Fairchild 2						1	1
Fleet 80		1					1
Found 2		1		2	1		4
Helio Courier 2						1	1
Howard						1	1
Maule				1			1
Norseman 5		3	1	3			7
Norseman 6		1		1	2		4
Piper 3		6	9	3		2	20
Piper 11			1	1			2
Piper 12		3	1			1	5

**FLOAT PLANE ACCIDENTS**  
**January 1 1970 — September 1 1973**

**By Type/By Region**

<b>AIRCRAFT TYPE</b>	<b>ATLANTIC</b>	<b>QUEBEC</b>	<b>ONTARIO</b>	<b>CENTRAL</b>	<b>WESTERN</b>	<b>PACIFIC</b>	<b>TOTAL</b>
Piper 14						1	1
Piper 18		14	4	2	1	9	30
Piper 20		1					1
Piper 22		1	1				2
Pilatus Porter				1			1
Porterfield 35					1		1
Silvaire 8						1	1
Stinson 10			2				1
Stinson 75				2	1	1	4
Taylorcraft 1		1	4			2	7
Taylorcraft 20		1					1
<b>TOTAL</b>	<b>6</b>	<b>102</b>	<b>65</b>	<b>86</b>	<b>22</b>	<b>86</b>	<b>367</b>

**Pilot Injury**

Pilot Fatal	55
Pilot Serious	29

**Crew Injury**

Fatal	0
Serious	11

**Passenger Injury**

Fatal	70
Serious	36



# WHITE-OUT ACCIDENTS 1967 — 1972

“During flight over snow covered terrain the blending of an obscured sky with the ground produces a condition known as white-out. In these circumstances visual flight cannot be maintained. In attempting flight without reference to instruments, disorientation can occur.”

AIRCRAFT MAKE AND MODEL	INJURIES	DAMAGE	DESCRIPTION OF OCCURRENCE
Mooney M20C	2S	S	During flight at low altitude and in visibility reduced by ice crystals, a turn was attempted. The aircraft descended onto the ice-covered lake.
Cessna 172C	F	S	During flight, reduced ceilings and visibilities were encountered. While descending in an effort to regain contact with the ground, the aircraft was flown into the snow covered ground. The pilot had not checked the weather prior to flight.
Piper PA28	3F	D	Following take-off in snow conditions the aircraft commenced a turn at low altitude. It descended slowly and struck the snow-covered ground.
Aeronca 11AC	2F	D	During flight over a snow covered lake and in “heavy snow” weather conditions the inexperienced pilot lost visual reference and control of the aircraft; it descended and struck the lake surface inverted at an angle of 35°. The pilot had not checked the weather prior to flight.
Cessna 172	3F	D	During flight over flat unbroken snow-covered terrain and in weather conditions of obscured sky due to snow, visual reference was lost and the aircraft impacted the surface. The pilot had not been weather-briefed.
Cessna 150	M	S	During a practice forced landing all visual reference was lost when the aircraft descended below the crest of a ridge. The pilot misjudged height during the period of white-out and the aircraft struck the ground.
Bell 206A	N	S	The engine of the helicopter failed for mechanical reasons. During the autorotation landing visual reference was lost due to a snow surface, unbroken by distinguishing objects. The helicopter struck the surface heavily.
Cessna 120	M	S	The pilot attempted to land on the snow-covered lake at a point where there were no objects in the area to facilitate depth



## WHITE-OUT ACCIDENTS 1967-1972

AIRCRAFT MAKE AND MODEL	INJURIES	DAMAGE	DESCRIPTION OF OCCURRENCE
			perception. The aircraft inverted in deep wet snow.
Piper PA23	5F	D	The pilot did not obtain a weather briefing prior to take-off. Following an instrument approach through cloud, the aircraft descended into moderate snow conditions and struck the surface violently.
Bristol 170 MK31	N	S	While on approach to a landing strip on the ice surface of a lake, the pilot turned at low altitude to line up with the strip. A wing struck the surface, probably due to the pilot misjudging altitude or attitude.
Cessna 170B	1F	D	Flying at low level in zero-zero conditions over snow, the pilot pulled up to avoid a pole, lost visual reference and stalled the aircraft, which struck the ground in a 90° nose down attitude.
Cessna 180H	N	S	The pilot attempted a landing at an ice aerodrome during blowing snow conditions. As the aircraft came to a stop, it contacted drifts which had not been seen by the pilot.
Fleet 80 Canuck	N	S	After lifting off from the snow covered surface of a lake, the pilot attempted to gain airspeed by putting the nose down. During this manoeuvre he misjudged his altitude and the skis dug into the snow.
Aero Commander 100	N	S	The flight encountered snow showers and the visibility was reduced to 1/4 mile. The aircraft was landed in a field where it over-turned.
Cessna 175	3F	S	The pilot attempted to return to the airport when he encountered deteriorating weather. After crossing the airport at 300 feet the aircraft crashed in a 60° right bank, nosedown turn.
Cessna 180	2F	S	During flight in twilight and weather conditions of 800 feet and 1/2 mile the aircraft struck the ground in a left wing low and descending attitude.
Beech 18S	1S 1M	S	During a VFR flight for which a weather report had not been obtained, the aircraft was flown into deteriorating weather conditions. In an attempt to maintain visual contact the aircraft struck the snow sur-

## WHITE-OUT ACCIDENTS 1967-1972

AIRCRAFT MAKE AND MODEL	INJURIES	DAMAGE	DESCRIPTION OF OCCURRENCE
			face. It bounced, the right engine stopped and the aircraft skidded to a stop in the snow.
Cessna 185E	N	S	An approach to land was being made in snow conditions of 1000 feet and 3/4 of a mile visibility. The pilot stated that due to white-out conditions he was unable to distinguish high snow-banks beside the snow-covered strip. The left ski struck a high drift and the aircraft climbed a snow bank.
Cessna 182	3F	D	During a flight in moderate snow conditions the aircraft struck the surface of a snow-covered lake in a left wing nose down attitude at an airspeed well above the stall. There was no evidence that the pilot had checked the weather prior to take-off.
Anson 5	25	D	The pilot was flying in heavy snow storm. He inadvertently entered cloud and during the attempt to regain contact he became disoriented and flew into the snow covered lake surface.
DHC3	N	S	During an approach to land on a snow-covered lake the pilot failed to level off and struck the surface heavily. The undercarriage was driven 6 inches into the fuselage.
Stinson 68	N	S	During a turn onto final approach all visual reference was lost. The aircraft struck the ground 1/2 mile short of the strip.
Hughes 269	N	S	Following take-off from a high, snow covered plateau the pilot started a turn to the left. He stated that he lost all visual reference and the helicopter struck the ground heavily.
Alouette 11	2M	S	During flight at about 20 feet above the ground and in moderate snow conditions, white-out conditions were encountered; the helicopter struck the ground in a steep, right-banked attitude.
DeHavilland DHC-2	N	S	After landing, the pilot lost visual reference and the aircraft struck a snowbank.
Piper PA24	3F	D	During flight in weather conditions of 1/8 mile visibility in snow the aircraft struck the ground in a steep nose down attitude.

## WHITE-OUT ACCIDENTS 1967-1972

AIRCRAFT MAKE AND MODEL	INJURIES	DAMAGE	DESCRIPTION OF OCCURRENCE
			The pilot had not filed a flight plan and the search was delayed one day.
Cessna 206B	2S	S	During a VFR flight in decreasing visibility the pilot descended to maintain visual contact with the ground. As the aircraft flew over a large featureless lake in white-out conditions the pilot became disoriented and the aircraft descended, striking the surface.
Cessna 180	2F	S	Flying over a snow covered lake, the pilot became disoriented and lost control. The aircraft struck the ice in a vertical bank and in a steep nose down attitude.
DeHavilland DHC2	N	S	During the run-out following landing on a snow surfaced river, the aircraft contacted a snow bank which the pilot had failed to see.
Piper J3C 65	IS	S	During a forced landing due to accumulation of wet snow and ice, the left wing hit a snowdrift, causing the aircraft to cartwheel.
Beech B55	4M	S	An instrument approach was being made over a snow covered lake in weather of 600 feet and visibility 1 1/2 miles, occasionally 1/2 mile in heavy snow. The aircraft struck the surface 4 miles short of the intended landing strip. An error was found in the altimeter.
Aeronca 7AC	IS	S	During landing on a snow covered lake, the pilot lost ground reference and then lost control of the aircraft when it contacted the surface tail first.
Bell 206A	2F	S	The pilot became disoriented while flying above a snow covered lake. The helicopter struck the surface at high speed.
Cessna 185E	5F	D	The pilot flew out over a snow covered lake under weather conditions in which visual reference was reduced or lost. The aircraft stalled and fell in a steep nose down attitude.
Piper PA22	IM	S	The pilot continued flight into deteriorating weather conditions. He became lost, disorientated and crashed.

## WHITE-OUT ACCIDENTS 1967-1972

AIRCRAFT MAKE AND MODEL	INJURIES	DAMAGE	DESCRIPTION OF OCCURRENCE
Boeing 737	3N	S	It had been snowing for three hours when the aircraft arrived. It overshot the end of the runway by 670 feet.
Bell 47G	3N	S	Total ground reference was lost in drifting snow. A landing was attempted in a complete white-out condition and the helicopter touched down hard.
Bell 206	2N	S	A sleeping bag was thrown out for visual reference when the natural horizon was lost. The helicopter touched down hard.
Bell 206A	N	D	While carrying out a seismic survey at low level above sea ice, the pilot lost visual reference. The helicopter descended until it struck the surface, and it was subsequently destroyed by fire.
Aeronca 7CCM	1F	S	The aircraft struck the ground in a 30° nose down attitude at normal flying speed during flight in whiteout conditions.
Beech B58	1F	D	The aircraft descended through the base of clouds into fog over a snow covered plain. With no ground reference, the aircraft continued descent into the ground.
Beech B35	1F	D	While flying in blowing snow and visibility between zero and 1/4 mile, the aircraft struck the frozen lake surface.
Hughes 369	3N	D	While landing on a snow-covered surface at the base of a hill, the hill became completely obscured by snow and fog. The left float hit a snow bank and the helicopter tipped over.
DeHavilland DHC6	2S 3M 1N	S	During a tear-drop turn to line up with the runway, the left wing struck the ground. Visibility was down to 1/8 of a mile.
Beech F35	2F	D	The aircraft struck a low hill, at cruise speed in white-out conditions. It bounced over the ridge and impacted the second time while inverted.
Cessna 180	1F	D	The pilot continued flight into a snow shower and encountered a white-out condition. The aircraft struck the ice surface in a descending turn.
DeHavilland DHC3	1M	D	During takeoff in a partial white-out condition the aircraft started to roll. The left

## WHITE-OUT ACCIDENTS 1967-1972

AIRCRAFT MAKE AND MODEL	INJURIES	DAMAGE	DESCRIPTION OF OCCURRENCE
			wing struck the snow surface and the aircraft crashed into the wooded shoreline.
Cessna 180	N	S	During a precautionary landing on a snow covered lake the pilot lost visual reference. The aircraft bounced on touchdown and one of the undercarriage legs broke.
Helio-Courier H391B	N	S	During a landing on snow covered tundra, the pilot rounded out high, resulting in a very hard landing.
Piper PA-12	N	S	The pilot failed to round out during a landing on the frozen surface of a lake, resulting in the right undercarriage being broken off.
Cessna 185E	N	S	During run-out following landing on a snow covered lake the right undercarriage separated from the aircraft when it contacted a hard drift.
Cessna 172D	4M	S	While flying at low level over offshore ice to examine suitability for landing, the pilot lost all visual reference. The aircraft's wing contacted the surface and the aircraft overturned.
Cessna 120	2M	S	During a turn over a snow covered lake the aircraft struck the surface. The pilot believed that he was flying 300 ft. above the surface.



# **HELICOPTER ACCIDENTS — ROTOR BLADE HAZARD** **1967 — 1972 INCLUSIVE**

During the period there were 14 accidents which resulted in death or injury to passengers or ground personnel. Of these, half were caused by people walking into rotating rotor blades. On some of these occasions the engine could have been shut down without too much inconvenience: on others it would appear that passengers or ground crew were not briefed adequately on the hazard of rotating blades during ground operations.

INJURIES	DAMAGE AIRCRAFT	MAKE AND MODEL	DESCRIPTION OF OCCURRENCE
S	M	FH-1100	While the helicopter was on the ground with the engine running, a passenger, approaching to board it, inadvertently walked into the tail rotor.
S	N	Sikorsky 5580	During flight, an experienced crew man secured by a safety strap was standing by the doorway to dispense the end of a rope when required. Turbulence was encountered and the swinging reel, suspended below, pulled the rail of rope which coiled around the crewman's ankle and almost severed his foot.
S	N	Bell 206A	A passenger was asked to attach a sling load. During the loading operation he stood on the side of a barrel to examine the attachment. His right hand was severed by the main rotor.
F	N	Hiller FH-1100	A man walked into the rotating, invisible, unguarded tail rotor.
S	N	Hiller FH-1100	A passenger debarked and walked into the unguarded tail rotor.
S	N	Bell 206A	During shutdown a man approached the helicopter from the rear and walked into the unguarded tail rotor.
2F	S	Bell 204B	During a slinging operation the load began to oscillate and finally broke away. The main rotor struck the load, separated from the helicopter, and then travelled through the cabin area.
F	S	Bell 206A	Following a landing on a narrow mountain ridge, two passengers disembarked. A strong gust of wind swept up the slope from the right and tipped the helicopter onto its left side. The main blades struck one of the passengers.
S	M	Bell 47G2	A passenger, after deplaning picked up two diamond drill rods to remove them from the helicopter pad. He placed the rods on his shoulder and they struck the main rotor blades.

HELICOPTER ACCIDENTS — ROTOR BLADE HAZARD  
1967 — 1972 INCLUSIVE

INJURIES	DAMAGE AIRCRAFT	MAKE AND MODEL	DESCRIPTION OF OCCURRENCE
S	N	Bell 47E4	A crew man was positioning himself to hook up nets to the helicopter. The downwash blew his jacket off the wharf into the water. The pilot decided to retrieve the jacket and as he passed over the crewman the tail rotor struck the latter's arm.
F	M	Bell 206A	In spite of extensive briefing the passenger walked into the unguarded tail rotor.
S	M	Bell 47G3B2	The helicopter had just landed when the fire worker walked from behind into the tail rotor. He was struck on his safety hat and sustained no head injury; his left arm was amputated at the shoulder and he sustained broken ribs, and a punctured lung. He had been warned about the main rotor but not the tail rotor.
F	S	Bell 206B	The pilot landed to pick up a passenger, and left the engine running in ground idle while he got out to check whether his passenger was in a nearby vehicle. Upon reaching the truck he looked back toward the aircraft and saw one of his passengers going toward the rear of the helicopter, ducking under the tail boom. The passenger was struck and killed by the tail rotor.

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**HOMEBUILT AIRCRAFT ACCIDENTS 1970 TO 1972**


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MAKE AND MODEL	ACCIDENT TYPE	AIRFRAME HOURS
Mini Ace CA62	Hard Landing	19.00
Teal Falconair	Nose Over	UNK
Cavalier	Nose Over	245.25
Sportsman	Overshoot	188.45
SE5A Replica	Collision with Terrain Controlled	127.00
Emeraude	Collision with Terrain Controlled	318.00
Jodel D-11	Stall	50.00
Tern	Stall	26.20
White Hi-wing	Stall	289.00
Sportsman Amphibian	Stall	475.00
Volks Midget	Engine Failure	87.00
D3 — Turbulent	Ground Loop	200.00
Pietenpol	Ground Loop	326.00
Pietenpol	Overshoot	397.00
Jodel D-11	Stall	UNK
Sportsman VJ22	Wheels down LDG in water	UNK
Starduster T00	Gear Collapsed	12.00
Jodel D-9	Hard Landing	32.20
Pazmany PL1	Overshoot	150.00
Bede 4BD4	Controlled collision with Terrain	00.30
Stits Playboy	Controlled collision with Terrain	40.00
Pietenpol	Collided with snowbank	12.00
Jeanies Teenie	Stall	50.00
Druine Turbi	Stall	110.00
Volmer VJ-22	Stall	250.00

TOTAL ALL	PILOT EXPERIENCE		LAST 90 DAYS ALL	TYPE	FACTORS
	TYPE	ALL			
1-250	16-25	26-35	16-25		Lack of familiarity with a/c; improper operation controls; Poor design
1-75	0-5	16-25	0-5		Improper maintenance; engine failure
1-400	251-300	0-5	0-5		Inadequate preflight preparation/planning: continued VFR into IMC; Fog
1-400	151-200	51-75	51-75		Failed to abort takeoff; soft runway
1-2000	101-150	101-150	101-150		Misjudged altitude; glassy water
1-500	301-400	16-25	16-25		Stalled; diverted attention from operation of a/c
1-200	51-75	51-75	51-75		Stalled; failed to follow approved procedures; inadequate maintenance; crankshaft failed
1-400	16-25	6-10	0-5		Stalled; improper loading possible
1-75	11-15	11-15	11-15		Stalled; inadequate preflight preparation/planning
1-3000	16-25	36-50	16-25		Fuel mismanagement; inadequate preflight preparation/planning
1-250	76-100	16-25	16-25		Engine failure — loss of control during low level turn
1-150	0-5	6-10	None		Improper operation flight controls; lack of familiarity with a/c
6-100	26-35	26-35	26-35		Attempted operation beyond experience/ability level; selected wrong runway relative to wind
1-1500	0-5	26-35	0-5		Wing struts/bracing wires failed
1-750	51-75	36-50	11-15		Improper operation powerplant/powerplant controls; unwarranted low flying
1-1000	36-50	16-25	16-25		Diverted attention from operation of a/c
1-2000	0-5	36-50	0-5		Improper maintenance — Gear collapsed
1-250	26-35	0-5	0-5		Improper recovery from bounced landing
1-150	76-100	16-25	16-25		Inadequate preflight check
1-75	None	None	None		Loss of directional control. Lack of aeronautical info for installation
1-1500	6-10	0-5	0-5		Engine failure — possible carburettor ice
1-150	6-10	0-5	0-5		Selected unsuitable terrain; exceeded designed stress limits of a/c
1-75	16-25	0-5	0-5		Not Assessed
1-75	0-5	0-5	0-5		Lack of familiarity with a/c
1-2000	201-250	36-50	36-50		Marginal weather — stalled







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Aircraft  
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Canada  
1973



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**AIRCRAFT  
ACCIDENTS  
CANADA**

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**1973**

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a  
statistical  
summary



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Information Canada  
Ottawa, 1976

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## NINETEEN SEVENTY-THREE

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In 1973 a total of 745 accidents were investigated by the Ministry of Transport's accident investigation division. Of these, 713 accidents occurred to Canadian registered aircraft and 32 were foreign aircraft.

This was the greatest number of accidents ever recorded in Canada for a single year. At the same time the total aircraft flying activity was the highest in history. The accident rate rose from 2.08 in 1972 to 2.23 accidents/10,000 hours in 1973. The number of casualties increased from 219 to 230.

A summary of accidents by phase of flight and type of accident is contained in this document.

On page 17, a graph depicts the aircraft hours flown by type of operator. Although it has

been considered by many that the International and Domestic scheduled activity formed the greatest portion of flying in Canada, the total activity of the seven level 1 and 2 carriers, Canadian Pacific, Air Canada, Quebec Air, Eastern Provincial, Trans Air, Nordair and Pacific Western Airlines represents only 16.7% of all flying in this country.

It can also be seen from the graph that the Level 3, 4 and 5 carrier operators, in 1973, engaged in almost three times the amount of activity than did the Level 1 and 2 carriers. Surprisingly, the sum of Private and Club flying activity is almost twice that of the seven large carriers.





## GLOSSARY OF TERMS

### ACCIDENT

an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, in which:

- any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or
- the aircraft receives substantial damage, is destroyed or missing.

### AIR CARRIERS

#### Charter

Air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft.

#### Contract

Air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.

#### International Scheduled

Carriers designated by the Government to operate international scheduled air services between Canada and any other State, pursuant to an international agreement or agreements to which Canada is a party.

#### Irregular Specific Point

Air carriers who offer public transportation of persons, mail and/or goods by aircraft, from a designated base, serving a defined area or a specific point or points, at a toll per unit.

#### Regular Specific Point

Air carriers who offer transportation of persons, mail and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.

#### Scheduled

Air carriers who offer public transportation of persons, mail and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit.

### AIRCRAFT

any machine that can derive support in the atmosphere from reaction of the air.

### POSITIONING

a non-revenue flight for operational reasons.

### SERIOUS INJURY

an injury requiring treatment, and results in suspension of normal activity for five or more days and includes:

- unconsciousness
- bone fracture except simple fracture of finger or toe
- lacerations of muscles or those which cause severe hemorrhage
- injury to an internal organ
- second or third degree burns or burns on more than 5% of the body.

### SPECIALTY OPERATIONS

recreational flying, flying training, aerial photography, aerial photography and survey, aerial application and distribution, aerial inspection, reconnaissance and advertising, aerial control, aerial construction.

### UNIT TOLL

public transportation of passengers and goods at a toll per unit.

# FIXED-WING 1973 CANADIAN REGISTERED

	TOTAL ACCIDS		FATAL ACCIDS		PILOT		OTHER CREW		TOTAL CREW		PASSENGERS		THIRD PARTY		TOTALS	
					K	SI	K	SI	K	SI	K	SI	K	SI	K	SI
<b>DOMESTIC SCHEDULED</b>	3															
<b>SCHEDULED INTERNATIONAL</b>																
<b>DOMESTIC NON-SCHEDULED</b>																
Regular Specific Points	3															
Irregular Specific Points	9	2	1	1		2			3		1	04	1		5	4
Charter Class 4A	8			1								1				2
Charter Class 4B	96	16	12	4		5	1		17	5	21	10		1	38	16
Charter Class 4C	5	1	1													
Contract Class 5																
<b>FLYING CLUB</b>																
Flying Training	18			1			1			2				1		3
Recreational Flying	12	2	1	1					1	1	6	1			7	2
<b>SPECIALTY</b>																
Recreational Flying	40	5	3	3			1		3	4	5	2			8	6
Flying Training	39	2	2						3		2				5	
AP																
APS	2															
AAD	17	1	1	3					1	3				1	1	4
AIRA	6	2	1						1		1	2			2	2
AC	3	2	2						2		1				3	
A Construction																
AAM	2	1									1				1	
<b>COMMERCIAL NON-REVENUE</b>	7	1	1	2					1	2	1				2	2
<b>STATE AIRCRAFT</b>	3	1	1						1		3				4	
<b>PRIVATE</b>																
Recreational Flying	246	25	20	14					20	14	14	9	2	1	36	24
Training	16	1					1									
Testing	10	1	1	1					1	1		1			1	2
Ferry	6	1	1						1						1	
Company Business	53	7	5	2					5	2	5	1		2	10	5
Aerial Spray	12	1	1	1					1	1					1	1
Other																
<b>UNKNOWN</b>																
<b>TOTALS</b>	616	72	54	33		9	3		62	36	61	31	3	6	125	73

\*Preliminary Figures

# ROTARY-WING 1973 CANADIAN REGISTERED

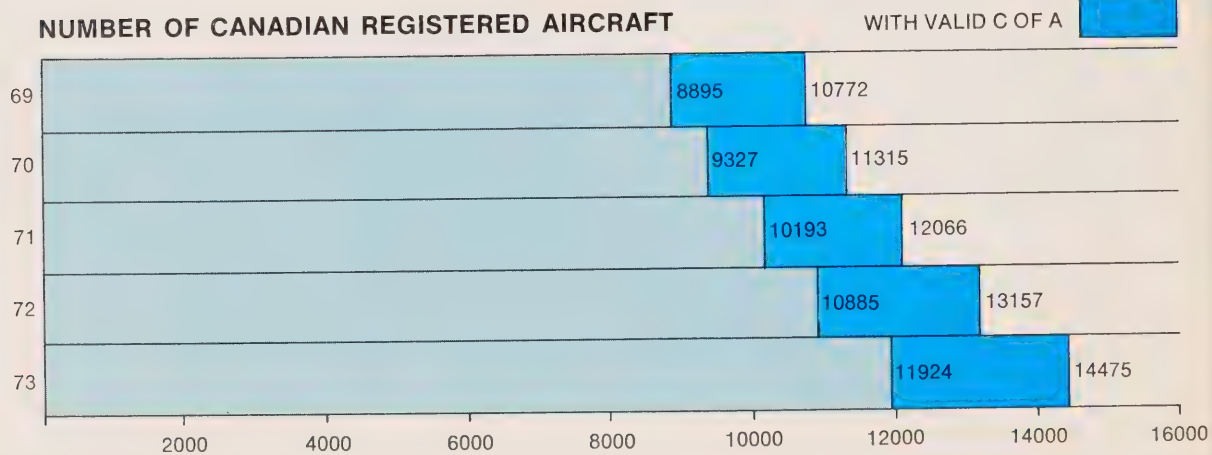
	TOTAL ACCIDS	FATAL ACCIDS	PILOT		OTHER CREW		TOTAL CREW		PASSENGERS		THIRD PARTY		TOTALS	
			K	SI	K	SI	K	SI	K	SI	K	SI	K	SI
<b>DOMESTIC SCHEDULED</b>														
<b>SCHEDULED INTERNATIONAL</b>														
<b>DOMESTIC NON-SCHEDULED</b>														
Regular Specific Points														
Irregular Specific Points														
Charter Class 4A														
Charter Class 4B	15													
Charter Class 4C	48	7	5		1		6		11	3	1		18	3
Contract Class 5														
<b>FLYING CLUB</b>														
Flying Training														
Recreational Flying														
<b>SPECIALTY</b>														
Recreational Flying	4	1	1				1		2				3	
Flying Training	4													
AP														
APS	2	1	1				1		2				3	
AAD	1													
AIRA	4	1	1				1						1	
AC	3													
A Construction	2													
AAM														
<b>COMMERCIAL NON-REVENUE</b>	3													
<b>STATE AIRCRAFT</b>	3	1	1				1		1				2	
<b>PRIVATE</b>														
Recreational Flying	3			1			1						1	
Training														
Testing														
Ferry														
Company Business	5													
Aerial Spray														
Other														
<b>UNKNOWN</b>														
<b>TOTALS</b>	97	11	9	1	1		10	1	16	3	1		27	4

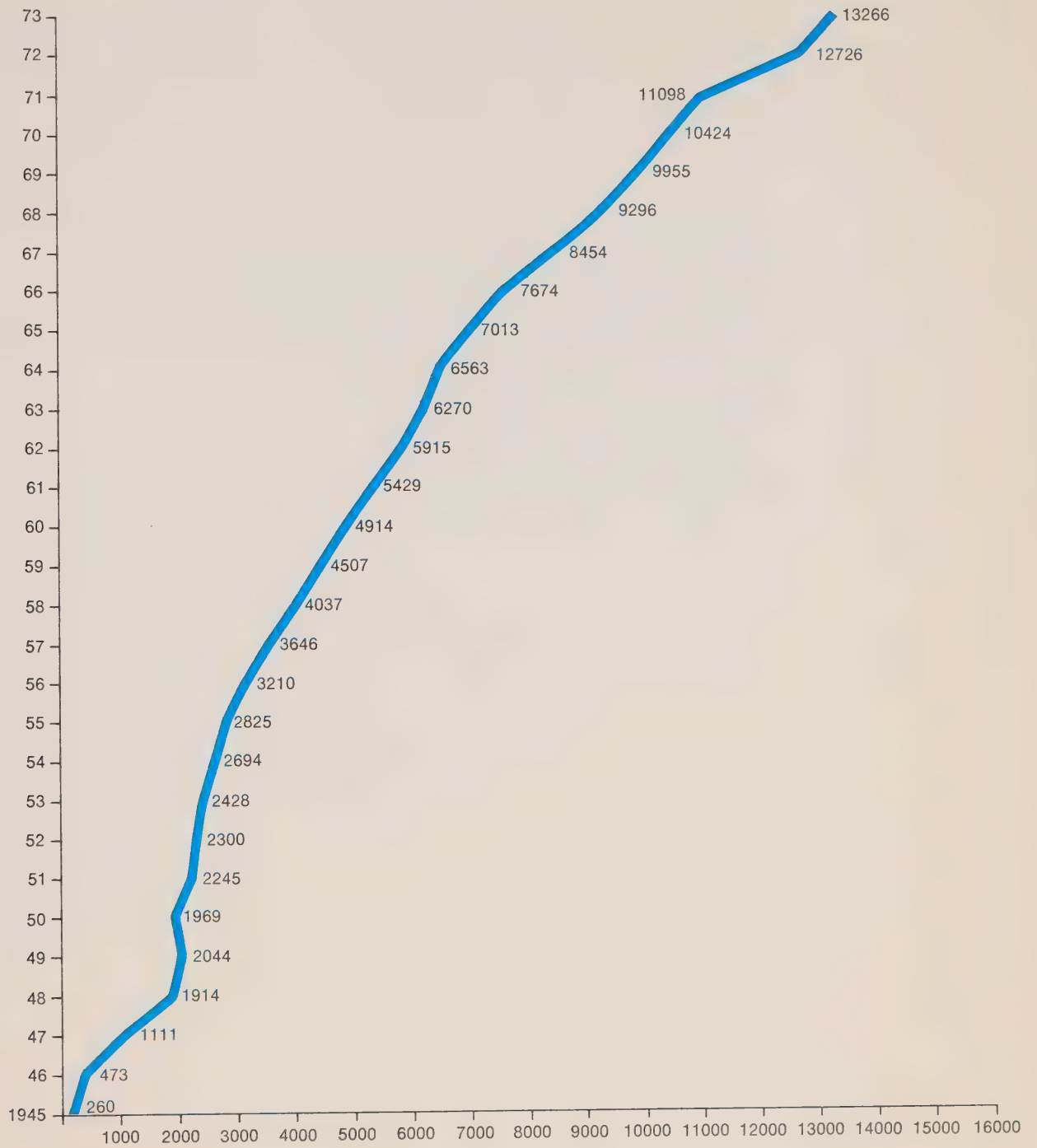
\*Preliminary Figures

## AIRCRAFT INFORMATION

### CANADIAN REGISTERED AIRCRAFT BY CLASSIFICATION

PRIVATE (Normal)	9446
PRIVATE (Ultra Light)	691
PRIVATE (Restricted)	81
	<u>10218</u>
COMMERCIAL (Normal)	3838
COMMERCIAL (Restricted)	145
	<u>3983</u>
STATE (Normal)	246
STATE (Experimental)	10
STATE (Restricted)	6
	<u>262</u>
EXPERIMENTAL	<u>12</u>
GRAND TOTAL	<u>14475</u>
TOTAL COMMERCIAL & STATE	<u>4245</u>



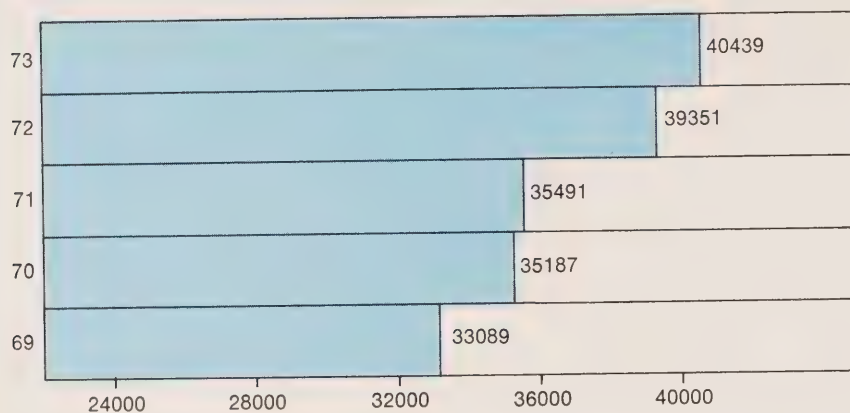
**AEROPLANE POPULATION GROWTH 1945-1973**



## PILOT INFORMATION

### Percentage of Pilot Licenses by Type:

	No.	%
AIRLINE TRANSPORT	3450	8.5
SENIOR COMMERCIAL	785	1.9
COMMERCIAL	5691	14.1
PRIVATE	29075	71.9
GLIDER	1438	3.6
	40439	



PILOT LICENCES IN FORCE  
1969-1973

No. LICENSES UP 2.8%

### PILOT LICENCES IN FORCE BY AGE GROUPS for the Years 1972 to 1973 incl.

"1972"				
Type of Licence	Under 25	25 - 35	36 - 45	Over 45
Private Pilot	4,080	7,947	9,219	7,371
Commercial Pilot	541	1,066	2,129	2,901
Senior Commercial Pilot	156	156	359	151
Airline Transport Pilot	693	1,160	1,130	181
"1973"				
Private Pilot	3,810	7,612	9,233	8,411
Commercial Pilot	438	977	2,023	2,251
Senior Commercial Pilot	132	125	315	211
Airline Transport Pilot	623	1,163	1,312	351

## SUMMARY OF FEMALE PILOT LICENCE HOLDERS

	1972	1973	1974
GLIDER PILOT LICENCE	32	38	53
PRIVATE PILOT LICENCE	1,063	1,173	1,361
COMMERCIAL PILOT LICENCE	55	66	82
SENIOR COMMERCIAL PILOT LICENCE	2	3	4
AIRLINE TRANSPORT PILOT LICENCE	8	6	10
TOTAL	1,160	1,286	1,510

## AIRCRAFT ACCIDENTS FEMALE PILOTS 1970-1974 incl.

Year	Type of License			ATR
	Private	Commercial	Sen. Commercial	
1970	6	0	0	0
1971	4	1	0	0
1972	7	2	0	0
1973	2	0	0	0
1974	2	0	0	1

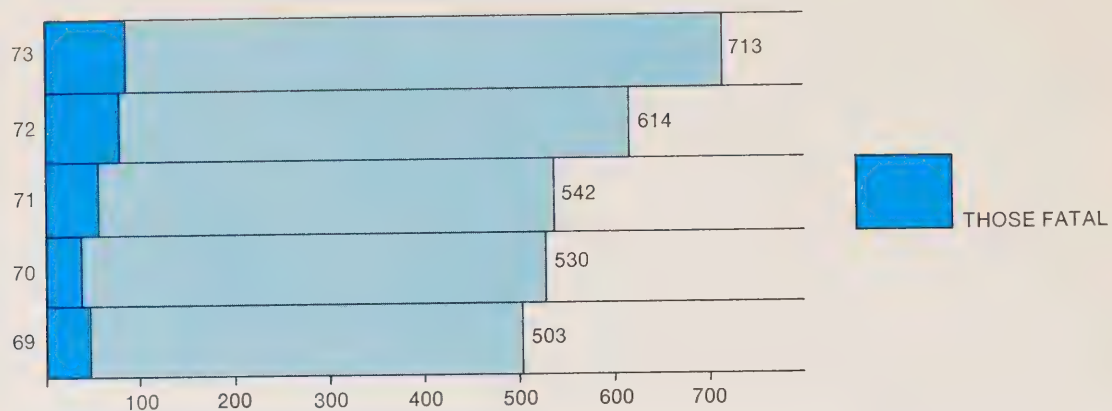
*Note:*

During the years 1970-1974 there were 14 accidents to female student pilots. Unfortunately, the number of students in the system was not available.

## ACCIDENT RATE/POPULATION OF LICENSED PILOTS

Female	Male
1972 — .77%	1972 — 1.6%
1973 — .15%	1973 — 1.84%
1974 — .19%	1974 — 1.65%

## ACCIDENTS TO CANADIAN REGISTERED AIRCRAFT 1969-1973



### CASUALTY CHART

	69	70	71	72	73
No. of Fatalities	140	223	157	145	153
No. Seriously Injured	84	88	96	74	77
Total Casualties	224	311	253	219	230

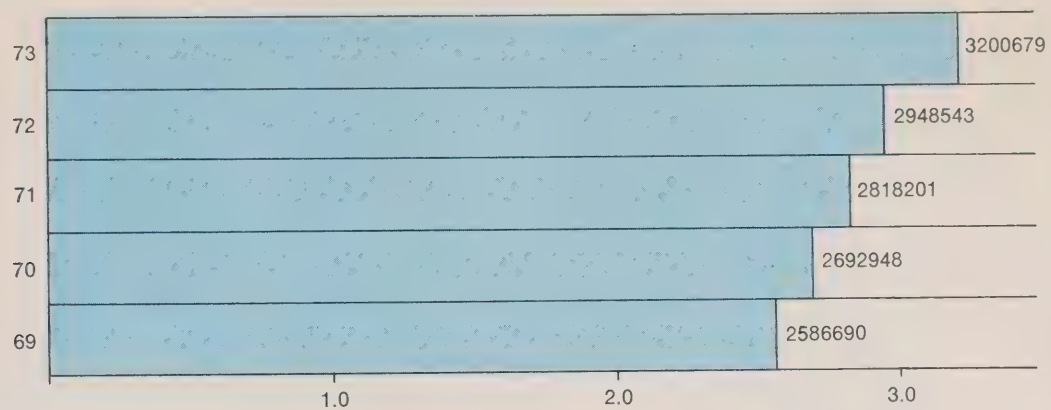
There was a fatal accident for every 8.7 accidents in 1973. The rate was 7.3 in 1972.

### FOREIGN AIRCRAFT ACCIDENTS IN CANADA

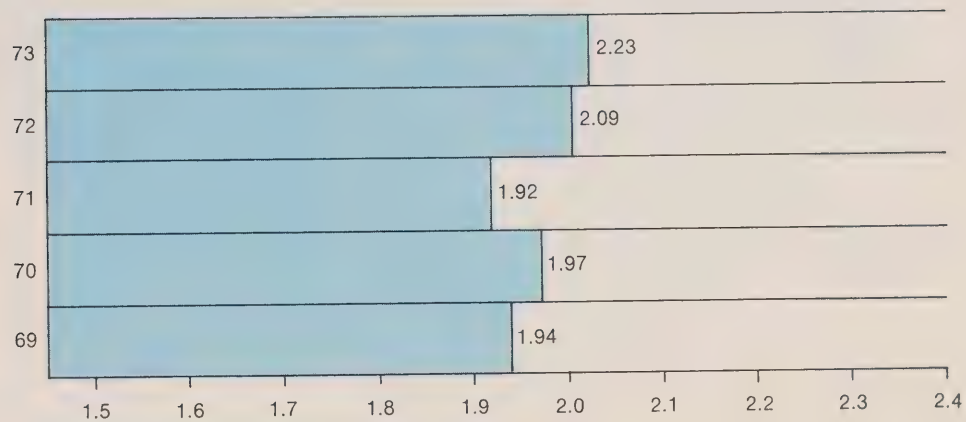
1969	40
1970	43
1971	32
1972	46
1973	32

## ACCIDENT INFORMATION

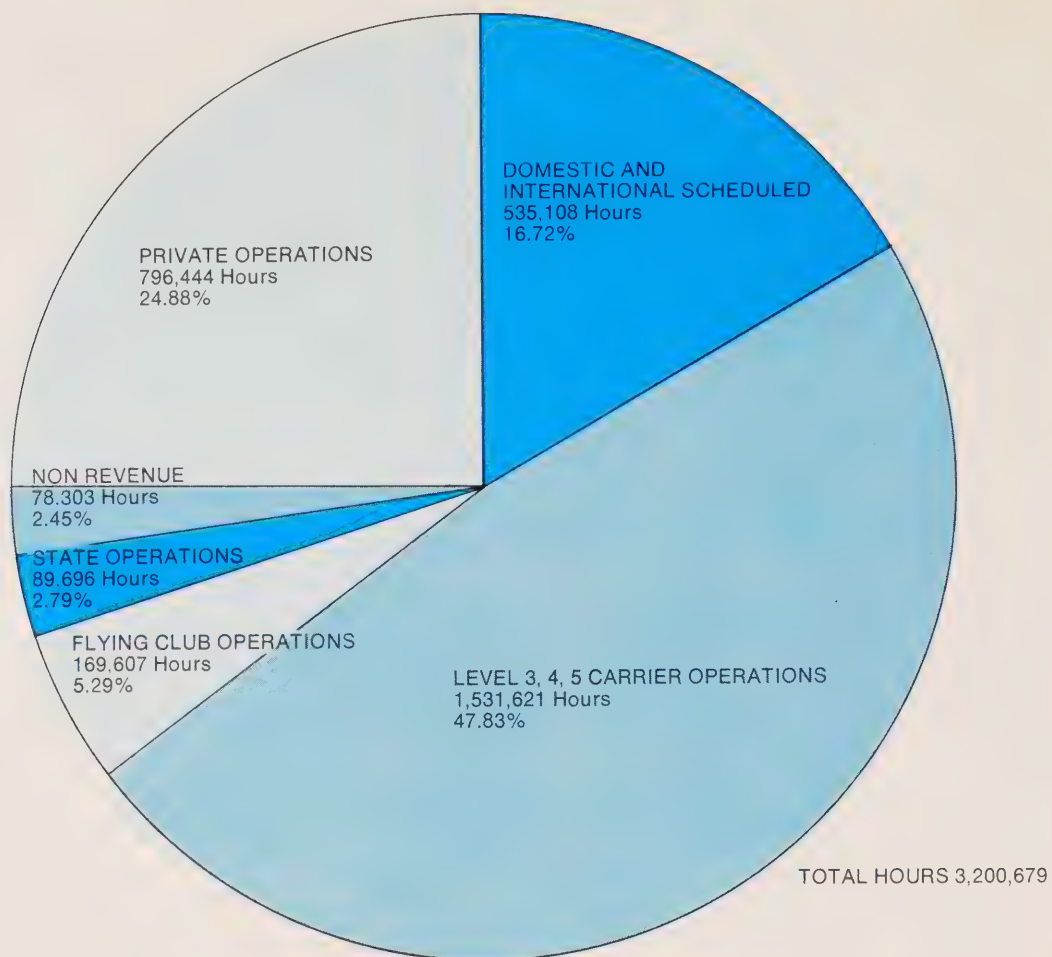
### Million Flying Hours



### Accident Rate/10,000 Hours



# ACTIVITY BY TYPE OF OPERATION 1973



## AIRCRAFT ACCIDENT DAMAGE PATTERN 1973

Aircraft Damage	Percentage
Destroyed	12.3
Substantial	82.9
Minor	2.8
Undamaged	1.9
Unknown	0.1



### AIRCRAFT ACCIDENTS IN CANADA BY REGION

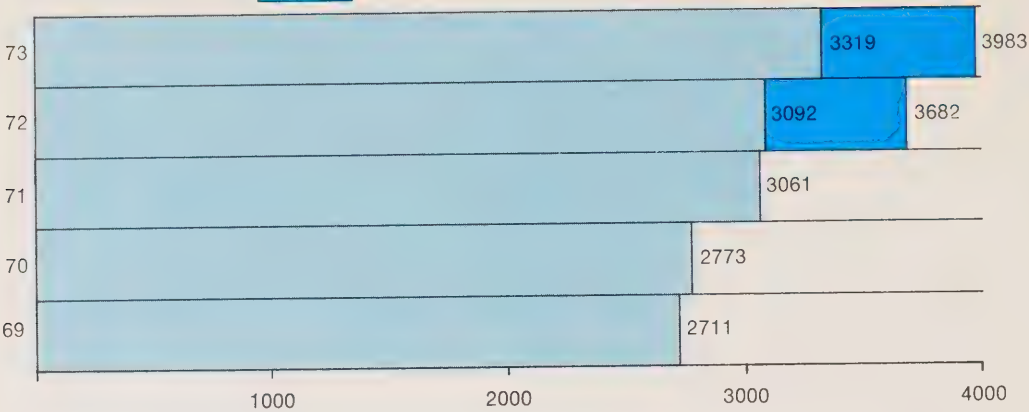
	1967	1968	1969	1970	1971	1972	1973
PACIFIC	112	107	100	101	96	109	110
WESTERN	89	94	106	98	110	110	112
CENTRAL	76	97	97	121	111	152	174
ONTARIO	86	95	103	123	112	123	156
QUEBEC	78	66	82	102	112	125	155
ATLANTIC	46	24	28	26	27	30	24
TOTAL	487	483	526	571	568	649	731

### ACCIDENT RATE BY TYPE OF OPERATION

Operation	No. Accidents	No. Hours	Accid./ 10,000 Hrs.
SPECIALTY (Other)	42	86319	4.87
PRIVATE	351	796444	4.41
NON-SCHEDULED (Charter and Contract)	172	820972	2.1
FLYING CLUB	30	169607	1.77
SPECIALTY (Recreation and Training)	87	561869	1.55
NON-SCHEDULED (Other)	12	120487	1.0
STATE AIRCRAFT	6	89596	0.67
SCHEDULED	3	477082	0.06

COMMERCIAL OPERATIONS

NUMBER OF COMMERCIAL AIRCRAFT  
with valid C of A



TOTAL NUMBER OF COMMERCIAL, SENIOR COMMERCIAL  
AND AIRLINE TRANSPORT LICENSES

1969	7995
1970	8458
1971	8577
1972	9634
1973	9926

Increase of 3.03%

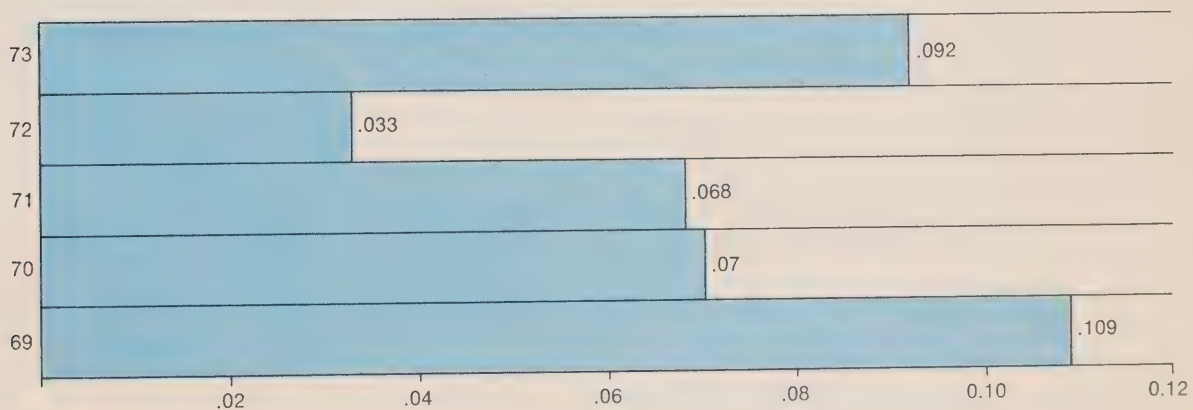
### INTERNATIONAL SCHEDULED FLIGHT DATA

(There were no accidents in this category in 1973)

	69	70	71	72	73
TOTAL ACCIDENTS	—	2	2	2	—
FATAL ACCIDENTS	—	1	—	—	—
HOURS FLOWN	134305	143179	142432	140214	150840
% OF TOTAL HOURS	5.2	5.3	5.1	4.8	4.7
ACCIDENTS/10,000 HRS.	—	0.14	0.14	0.14	—
PASSENGERS CARRIED (Millions)	2.40	2.72	2.87	3.14	3.42

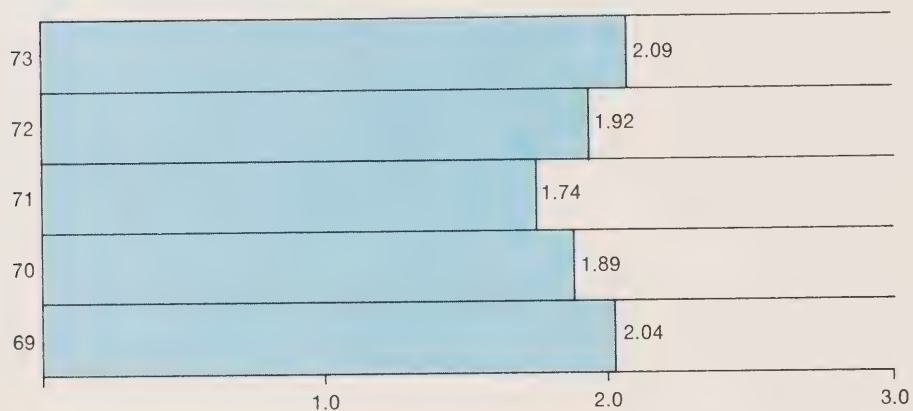
### DOMESTIC SCHEDULED FLIGHT DATA

	69	70	71	72	73
TOTAL ACCIDENTS	3	2	2	1	3
FATAL ACCIDENTS	2	1	—	—	—
% OF TOTAL ACCIDENTS FOR YEAR	0.60	0.40	0.5	Negl.	0.42
HOURS FLOWN	274354	285794	292243	295660	326242
% OF TOTAL FOR YEAR	10.61	10.61	10.37	10.03	10.19
ACCIDENTS/10,000 HRS.	0.109	0.07	0.068	0.033	0.092
PASSENGERS CARRIED (Millions)	6.39	7.12	7.88	8.93	11.23



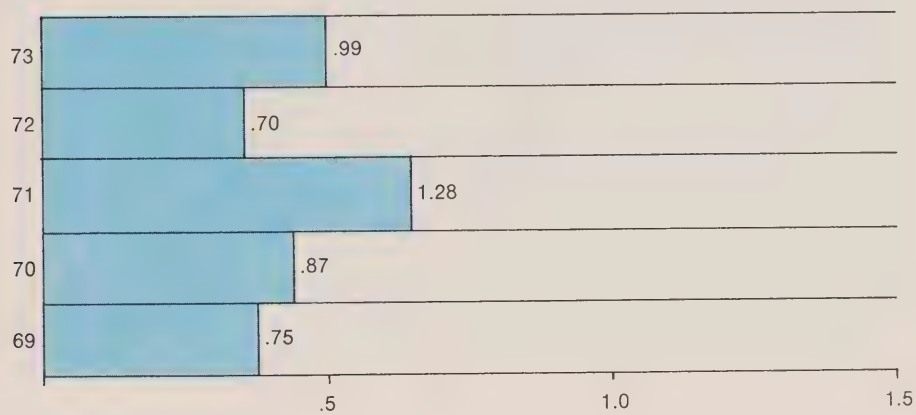
### NON-SCHEDULED CHARTER AND CONTRACT

	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
TOTAL ACCIDENTS	122	127	126	148	174
FATAL ACCIDENTS	20	6	21	23	23
% OF TOTAL ACCIDENTS FOR YEAR	24.3	23.9	23.2	24.1	24.3
HOURS FLOWN	598150	671496	724460	770809	820974
% OF TOTAL FOR YEAR	23.1	24.9	25.7	26.1	25.6
ACCIDENTS/10,000 HRS.	2.04	1.89	1.74	1.92	2.09



### NON-SCHEDULED UNIT TOLL

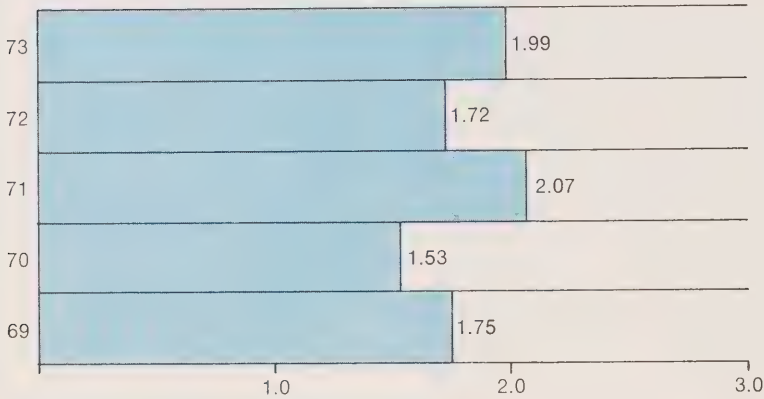
	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
TOTAL ACCIDENTS	6	7	10	7	12
FATAL ACCIDENTS	1	1	2	—	2
% OF TOTAL ACCIDENTS FOR YEAR	1.19	1.32	1.86	1.86	1.68
HOURS FLOWN	80376	80120	78201	99860	120487
% OF TOTAL FOR YEAR	3.11	2.98	2.77	3.39	3.76
ACCIDENTS/10,000 HRS.	0.75	0.87	1.28	0.70	0.99





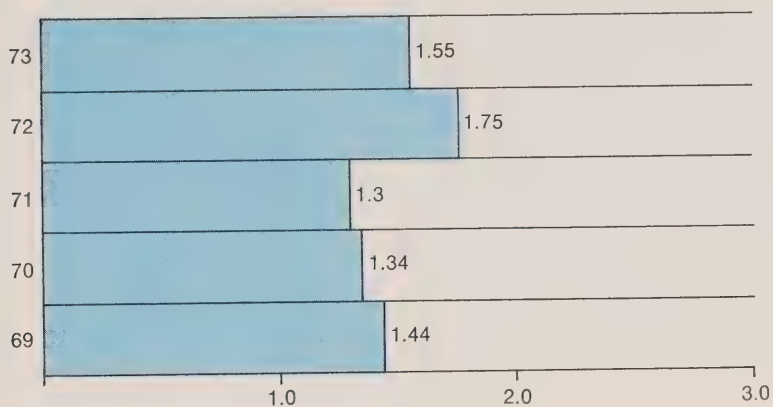
TOTAL SPECIALTY

	69	70	71	72	73
TOTAL ACCIDENTS	92	81	119	96	129
FATAL ACCIDENTS	9	11	11	11	16
% OF TOTAL ACCIDENTS FOR YEAR	18.29	15.28	19.37	15.66	22.4
HOURS FLOWN	525980	527741	576060	558248	648188
% OF TOTAL FOR YEAR	20.33	19.6	20.4	18.9	20.3
ACCIDENTS/10,000 HRS.	1.75	1.53	2.07	1.72	1.99



### SPECIALTY: TRAINING AND RECREATION

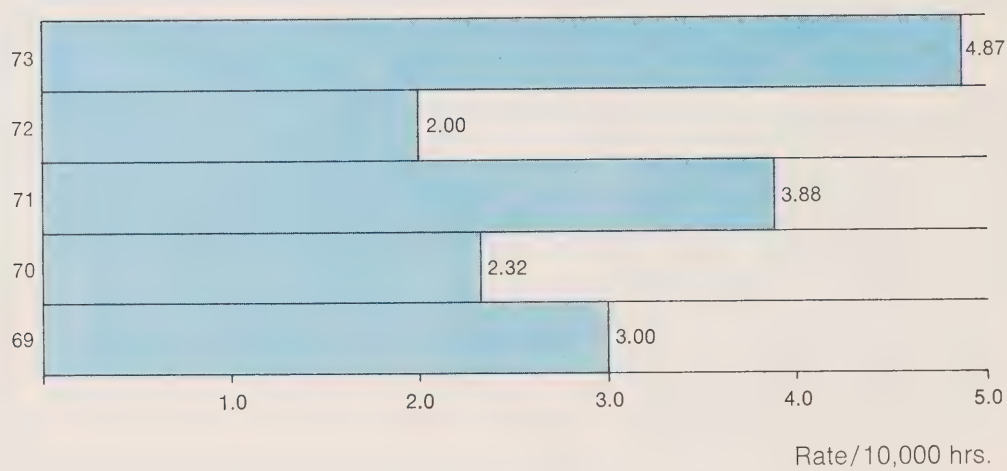
	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
TOTAL ACCIDENTS	61	57	61	81	87
FATAL ACCIDENTS	7	6	7	8	8
% OF TOTAL ACCIDENTS FOR YEAR	12.1	10.8	11.6	13.2	12.2
HOURS FLOWN	422816	424280	467856	463449	561869
% OF TOTAL FOR YEAR	16.4	15.8	16.6	15.7	17.6
ACCIDENTS/10,000 HRS.	1.44	1.34	1.3	1.75	1.55



Rate/10,000 hrs.

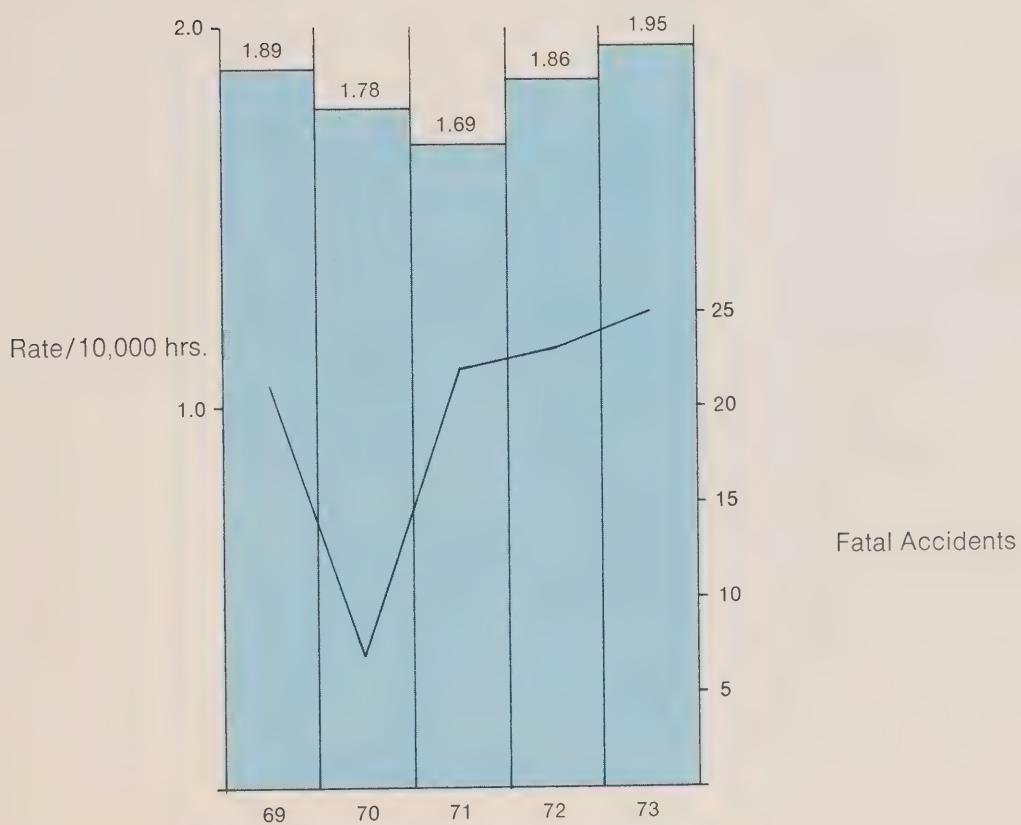
**SPECIALTY: OTHERS**

	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
TOTAL ACCIDENTS	31	24	42	19	42
FATAL ACCIDENTS	2	5	4	3	8
% OF TOTAL ACCIDENTS FOR YEAR	5.77	4.53	7.82	3.01	5.89
HOURS FLOWN	103164	103261	108204	94799	86319
% OF TOTAL FOR YEAR	3.99	3.83	3.84	3.22	2.7
ACCIDENTS/10,000 HRS.	3.00	2.32	3.88	2.00	4.87



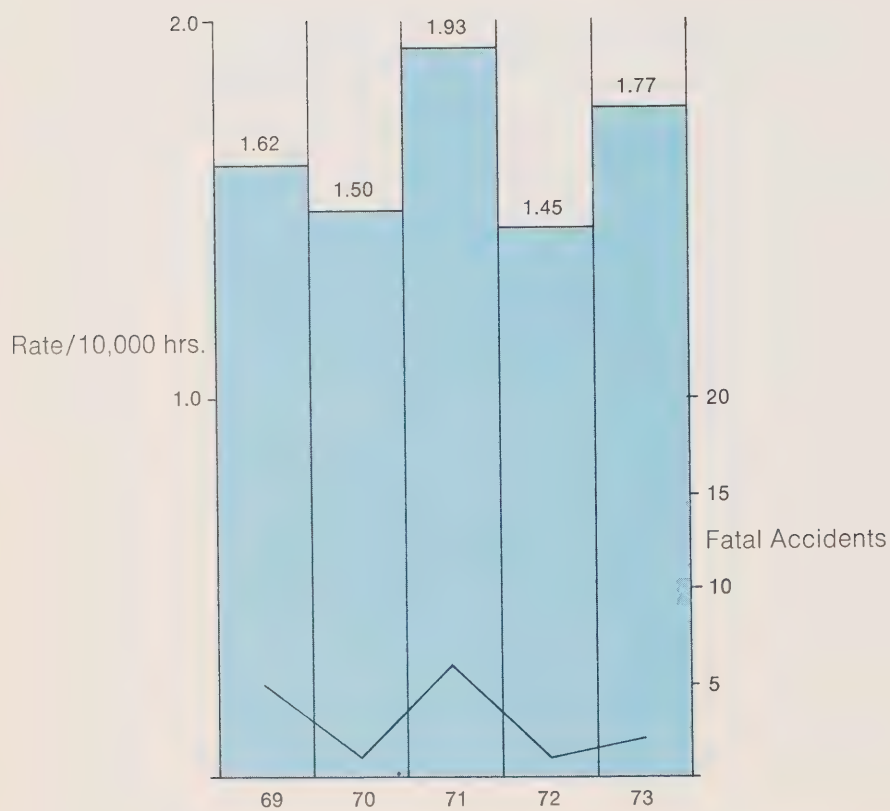
### NON-SCHEDULED OPERATIONS

	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
TOTAL ACCIDENTS	128	134	136	162	184
FATAL ACCIDENTS	21	7	22	23	25
% OF TOTAL ACCID FOR YEAR	25.5	25.3	25.3	26.4	25.8
HOURS FLOWN	678526	751616	802661	870669	941459
% OF TOTAL FOR YEAR	26.2	27.9	28.5	29.5	29.4
ACCIDENTS/10,000 HRS.	1.89	1.78	1.69	1.86	1.95



### FLYING CLUBS: RECREATION AND TRAINING

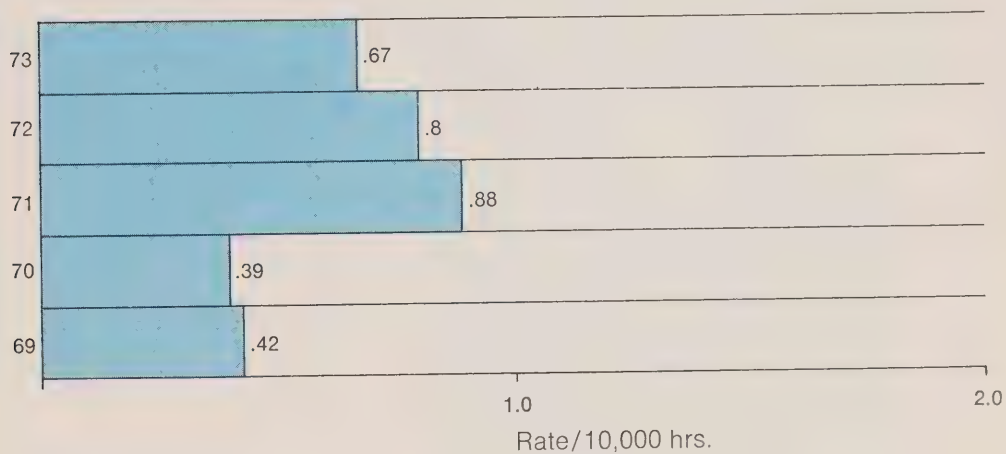
	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
TOTAL ACCIDENTS	23	20	27	20	30
FATAL ACCIDENTS	5	1	6	1	2
% OF TOTAL ACCID FOR YEAR	4.57	3.77	4.98	3.26	4.21
HOURS FLOWN	142039	133498	140049	137536	169607
% OF TOTAL FOR YEAR	5.49	4.96	4.97	4.66	5.3
ACCIDENTS/10,000 HRS.	1.62	1.50	1.93	1.45	1.77





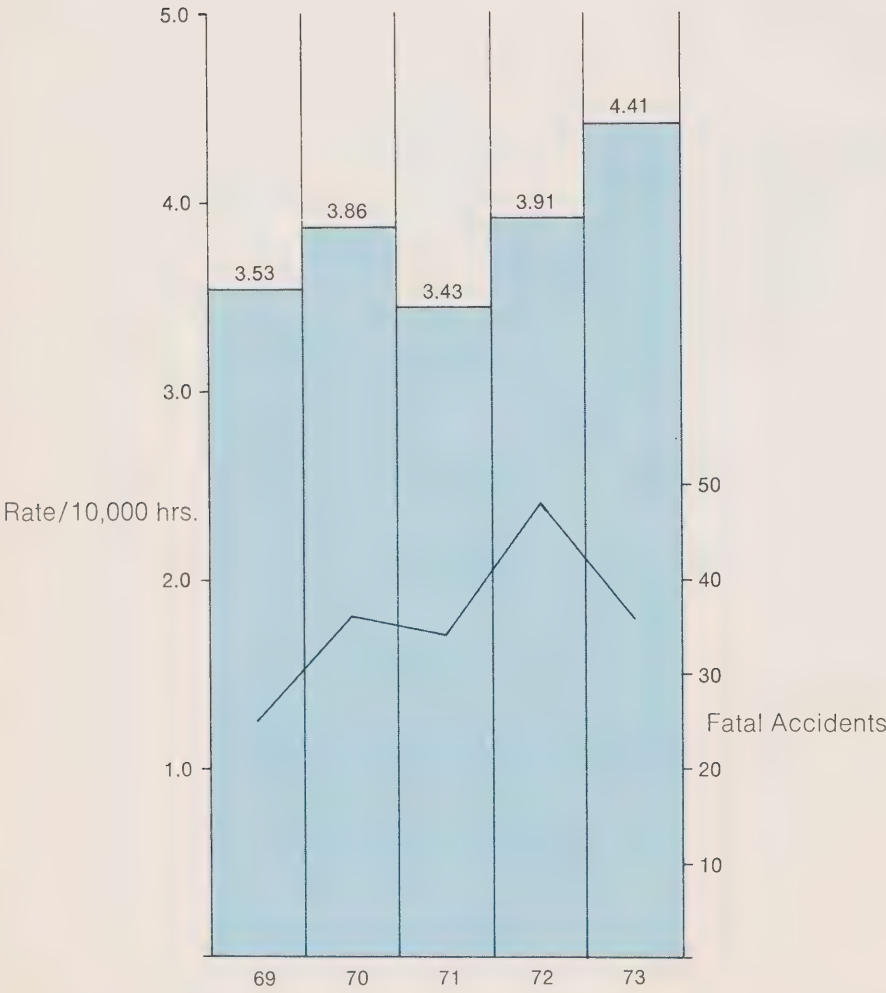
# STATE OPERATIONS

	69	70	71	72	73
TOTAL ACCIDENTS	3	3	7	7	6
FATAL ACCIDENTS	—	—	1	—	2
% OF TOTAL ACCID FOR YEAR	0.60	0.56	1.30	1.14	0.84
HOURS FLOWN	75000	76000	80000	87341	89596
% OF TOTAL FOR YEAR	2.90	2.82	2.84	2.96	2.8
ACCIDENTS/10,000 HRS.	0.42	0.39	0.88	0.8	0.67
STATE AIRCRAFT WITH VALID C OF A	166	188	219	245	231



PRIVATE OPERATIONS

	69	70	71	72	73
TOTAL ACCIDENTS	247	274	249	309	351
FATAL ACCIDENTS	25	36	34	48	36
% OF TOTAL ACCID FOR YEAR	49.1	51.7	45.9	50.3	49.2
HOURS FLOWN	700000	710000	725000	791218	796444
% OF TOTAL FOR YEAR	27.1	26.4	25.7	26.8	24.9
ACCIDENTS/10,000 HRS.	3.53	3.86	3.43	3.91	4.41



# **HELICOPTER ACCIDENTS BY TYPE OF OPERATION**

<b>Year</b>	<b>Commercial</b>	<b>State</b>	<b>Private</b>
1963	33	—	3
1964	31	3	—
1965	41	2	9
1966	52	1	9
1967	54	3	4
1968	56	6	3
1969	69	2	4
1970	59	1	7
1971	69	1	2
1972	85	2	6
1973	86	3	8

## **COMMERCIAL HELICOPTER ACCIDENTS**

TOTAL ACCIDENTS	86
FATAL ACCIDENTS	10
% TOTAL ACCID FOR YEAR	12.06
HOURS FLOWN	266004
% OF TOTAL FOR YEAR	8.3
ACCIDENTS/10,000 HRS.	3.23



### HELICOPTER ACCIDENTS vs HELICOPTER POPULATION

	<b>66</b>	<b>67</b>	<b>68</b>	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
POPULATION	390	435	453	501	551	625	712	800
ACCIDENTS	62	61	66	74	68	72	93	97
% INVOLVED IN ACCIDENTS	15.8	14.0	14.5	14.8	12.3	11.5	13.1	12.1

### HELICOPTER vs AEROPLANE ACCIDENT AND FATAL ACCIDENT DATA

	<b>69</b>	<b>70</b>	<b>71</b>	<b>72</b>	<b>73</b>
HELICOPTER ACCIDENTS	74	68	72	94	97
ACCIDENTS TO ALL AIRCRAFT OF CANADIAN REGISTRY	502	530	536	614	713
PERCENTAGE OF TOTAL WHICH OCCURRED TO HELICOPTERS	14.9	12.8	13.4	15.3	13.6
HELICOPTER POPULATION	501	551	625	712	800
FIXED-WING ACCIDENTS	420	458	493	520	616
FIXED-WING POPULATION	10184	10679	11441	12442	13266
PERCENTAGE OF HELICOPTER POPULATION INVOLVED IN ACCIDENTS	14.9	12.3	11.5	13.1	12.1
PERCENTAGE OF FIXED-WING AIRCRAFT INVOLVED IN ACCIDENTS	4.1	4.2	4.3	4.2	4.6
FATAL HELICOPTER ACCIDENTS	10	5	7	6	11
FATAL FIXED-WING ACCIDENTS	51	52	73	78	71
PERCENTAGE OF HELICOPTER ACCIDENTS FATAL	13.3	7.4	9.7	6.5	11.3
PERCENTAGE OF FIXED-WING ACCIDENTS FATAL	12.2	11.4	14.5	15.0	11.5



SEASONAL ACCIDENT SUMMARY

Percentage of Total Accidents by Time of Year	
JAN. — FEB.	12.4%
MAR. — APR.	12.8
MAY — JUN.	19.6
JUL. — AUG.	25.2
SEP. — OCT.	18.7
NOV. — DEC.	11.3

ACCIDENTS BY MONTH OF OCCURRENCE

	69	70	71	72	73
JANUARY	22	27	41	31	53
FEBRUARY	27	41	31	39	36
MARCH	21	38	48	47	40
APRIL	31	40	43	34	52
MAY	44	67	35	65	53
JUNE	76	81	70	77	89
JULY	71	76	62	91	98
AUGUST	80	51	83	96	85
SEPTEMBER	47	46	54	61	75
OCTOBER	32	38	41	49	60
NOVEMBER	38	15	33	42	41
DECEMBER	32	33	35	28	45

## ACCIDENT DISTRIBUTION — 1973



NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT

Frequency

%

Mush	4	.55
Fire in Flight	6	.82
Fire on Ground	3	.41
Air Frame Failure	1	.13
Engine Failure/Malfunctions	103	14.16
Propellor Failure	1	.13
Tail Failure	2	.26
Main Rotor Failure	2	.26
Undetermined	2	.26
Turbulence	1	.13
Prop/Rotor Accident	9	1.23
Other	13	1.78
Ground Loop	62	8.52
Dragged wing tip	18	2.47
Wheels-up Landing	6	.82
Wheels-down-water landing	2	.26
Gear Collapsed	28	3.85
Hard Landing	45	6.18
Nose over	21	2.8
Roll over	18	2.47
Over-shot landing area	53	7.29
Under-shoot	14	1.92
Collision in flight	3	.41
Collision (one aircraft airborne)	5	.68
Collision (both on ground)	3	.41
Collision (controlled ground water)	64	8.8
Uncontrolled collision ground water	2	.26
Struck wires/poles	26	3.5
Struck trees	42	5.7
Struck houses	1	.13
Struck fence	11	1.5
Struck Appr. Lights	1	.13
Struck Airport Hazard	5	.68
Struck Crop	2	.26
Struck Ditches	6	.82
Struck Snowbanks	15	2.06
Struck Parked Aircraft	1	.13
Struck Automobile	9	1.23
Struck Dirt Bank	7	.96
Other	34	5.18
Bird Strike	1	.13
Stall	66	9.07
Spin, spiral, roll	9	1.22
total	727	100%

# RECURRING ACCIDENTS BY PHASE OF FLIGHT & ACCIDENT TYPE 1973

	No. of Accidents		No. of Accidents
<b>Take Off Run</b>		<b>Cruise</b>	
Engine failure — malfunction	3	Fire or explosion	3
Ground/water loop	10	Engine Failure or malfunctions	27
Dragged wing tip	2	Other	5
Gear Collapsed	3	Tail Rotor Failure	1
Nose-over	1	Propellor/Jet Blast	1
Roll-over	1	Forced Landing	1
Over shoot	8	Nose over (forced landing)	1
Collision/ground (controlled)	3	Over shoot	3
Collision — wires, poles	2	Collision Ground	14
Collision fences	1	Collision Wires/Cables	8
Collision (airport hazard)	1	Collision trees	4
Collision (ditches)	2	Collision (forced landing)	1
Collision (snowbank)	3	Bird Strike	1
Collision (automobiles)	2	Stall	4
Collision (dirt bank)	1	Spins	2
Collision (snowmobiles)	1	Other	3
Stall	1		
<b>Lift Off</b>		<b>Touch down</b>	
Mush	1	Engine failure	1
Engine failure	5	Ground water/loop	12
Dragged wing tip	5	Dragged wing tip	5
Gear collapsed	1	Wheels down/water	1
Abort	1	Gear collapsed	7
Nose-over	2	Gear retracted	3
Roll-over	2	Hard landing	26
Overshot runway	10	Nose over	2
Collision (ground/water)	3	Roll over (helicopter)	2
Collision, trees	6	Wheels up landing	5
Collision, fences	4	Over-ran runway	3
Collision, crop	1	Undershot runway	2
Collision, snowmobile	1	Collision (controlled) ground	10
Collision, automobile	1	Collision trees	1
Collision, dirt bank	1	Collision fence	2
Stall	9	Collision airport hazard	2
		Collision crop	4
<b>Climb</b>		<b>Runout</b>	
Mush	1	Ground crop	35
Fire in flight	1	Gear collapsed	9
Engine failure	27	Gear inadvertent retraction	2
Other	1	Nose over	10
Wheels up landing (forced)	1	Roll over	5
Gear collapse, landing (forced)	1	Overshoot	17
Overshot	2	Collision (one airborne)	1
Collision (one airborne)	1	Collision (both on ground)	1
Collision (ground/water)	10	Collision fence	1
Collision (poles, wire)	4	Collision approach lights	1
Collision trees	11	Collision airport hazard	1
Collision dirt banks	2	Struck ditch	2
Stall	17	Struck snow bank	6
Spin	1	Other	2
Other	2	Struck dirt bank	2

**ACCIDENTS IN CANADA TO UNITED STATES  
REGISTERED AIRCRAFT (UNDER 12,500 LBS.)**

<b>YEAR</b>	<b>ACCIDENTS</b>	<b>FATALITIES</b>
1970	40	12
1971	30	16
1972	42	19
1973	22	5
1974	31	10 (data may be incomplete)
TOTAL	165	62

**ACCIDENTS TO U.S. AIRCRAFT (UNDER 12,500 LBS.)**

<b>PILOT FACTORS</b>	<b>NUMBER</b>
Selected unsuitable terrain	20
Continued VFR into adverse weather	14
Failed to see/avoid objects or obstructions	14
Inadequate preflight preparation/planning	12
Failed to maintain directional control	8
Became lost/disoriented	7
Improper IFR operation	6
Improper compensation for wind conditions	6
Attempted operation beyond experience/ability level	6
Failed to follow approved procedures, directives, instructions	5
Improper level off	5
Improper operation of flight controls	5
Mechanical failures	17
Weather factors	25



## HOMEBUILT ACCIDENTS

YEAR	ACCIDENTS	FATALITIES
1970	16	3
1971	14	5
1972	16	1
1973	19	2
1974	24	3 (data may be incomplete)
TOTAL	89	14

### HOMEBUILT ACCIDENTS — PILOT FACTORS 89 ACCIDENTS

FACTORS	NUMBER
Failed to obtain/maintain airspeed	11
Lack of familiarity with aircraft	9
Failed to maintain directional control	6
Improper operation of flight controls	7
Selected unsuitable terrain	5
Inadequate preflight preparation & planning	4
Attempted operation beyond experience/ability level	4
Improper compensation for wind conditions	3
Mechanical failures	12
Weather factors	4

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## **ACCIDENTS 1967-1973**

### **GROUND PERSONNEL INVOLVEMENT**

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In the period 1967-1973 there were 42 accidents involving aeroplanes in which ground personnel played a part. The majority of these accidents resulted in a death or serious injury due to contact with a propeller.

There are several patterns evident in the analysis of these accidents relating to type of equipment and pilot action or lack of it. The majority of accidents (35) involve single engine aircraft, and of this group only 10 were landplanes, while 18 were seaplanes and 7 were ski-equipped. One very common accident occurs when a passenger or ground crewman attempts to assist the pilot in docking, and walks forward on the float into the propeller. In ski operations when the aircraft will not move under its own power passengers walk into the propeller while pushing or pulling the aircraft. In three cases the pilot attempted to start, taxi or park without assistance and either fell or walked into the propeller.

There were five accidents involving twin engine aircraft, and three of these were float equipped or amphibious. There were two accidents involving a DC-4 and a Viscount, both attributable to ground crew errors. In the case of the DC-4 a vehicle was parked too close to the aircraft and it was struck during the initial taxi. In the Viscount accident a ground crew member walked into a propeller as it was revolving slowly after shutdown.

In many of the accidents the pilot did not exercise proper control over the operation or failed to warn passengers or crewmen of the hazards involved. In most docking operations it would have been simpler and safer if the pilot had shut down the engine and with the aid of the passenger paddled to the dock. While the hazards may be obvious to the pilot, most passengers are oblivious to the danger of the propeller and require extensive briefing if they are to be allowed to move near an aircraft when the engine is running.

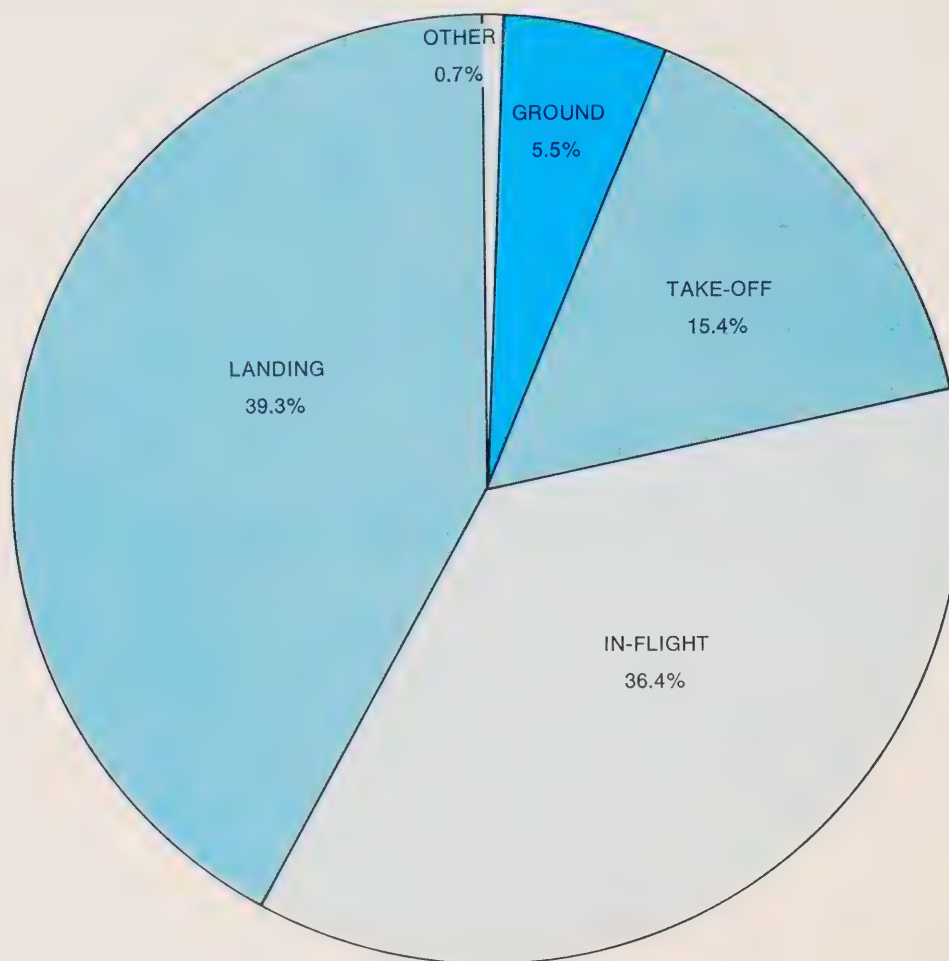
**ACCIDENTS 1967-1973**  
**GROUND PERSONNEL INVOLVEMENT**

TYPE	NUMBER	LAND PLANE	SEA PLANE	SKI PLANE
Cessna 180	10	2	4	4
Beaver/Turbo Beaver	9	—	8	1
PA-3	2	2	—	—
PA-28	2	2	—	—
PA-18	2	—	1	1
PA-11	1	—	1	—
PA-23	1	1	—	—
Cessna 182	1	—	1	—
Cessna 185	1	1	—	—
Volmer	1	—	1	—
Cessna 150	1	1	—	—
Cessna 150	1	—	1	—
Norsemen	1	—	—	1
PA-25	1	1	—	—
Aeronca Chief	1	—	1	—
Twin Otter	2	—	2	—
Twin Comanche	1	1	—	—
Cessna 310	1	1	—	—
Widgeon	1	—	1	—
DC-4	1	1	—	—
Viscount	1	1	—	—
Total	42	10	20	6

**ACCIDENTS (FIRE INVOLVED)**  
**COMPUTER SAMPLE 3000 ACCIDENTS**

SPECIFICS	TOTAL	PERCENT
ACCIDENTS INVOLVING FIRE	73	2.43
PERSONS WITH BURNS ONLY	45	1.5
PERSONS WITH BURNS AND OTHER INJURIES	119	3.97
FATALITIES (CREW)	62	2.07
SERIOUS INJURIES (CREW)	13	0.43
PASSENGER FATALITIES	67	2.23
PASSENGER SERIOUS INJURIES	8	0.27

**ACCIDENTS BY PHASE OF FLIGHT**



1973

<b>ACCIDENTS BY PHASE OF FLIGHT</b>	<b>Frequency</b>	<b>%</b>
Unknown	2	.27
Start-Up	6	.82
Stationary	6	.82
Taxiing	15	2.06
Air-taxiing (helicopters)	2	.27
Step-taxiing	1	.135
Docking	1	.135
Shut-Down	2	.27
Parking	5	.68
Take-off Run	46	6.3
Lift-Off	55	7.56
Hover (take off)	7	.96
Climb	84	11.55
Descent	15	2.06
Cruise	94	12.92
Level Turn	23	3.16
Climbing Turn	20	2.75
Descending Turn	10	1.37
Translation	7	.96
Hover (in flight)	2	.27
Initial Approach	9	1.23
Final Approach	58	7.97
Flare	28	3.85
Hover (Landing)	10	1.37
Touch-Down	83	11.41
Run-Out	106	14.58
Turn-Off	4	.55
Load Pick-Up	2	.26
Load Positioning	1	.13
Total	727	100%



SURVEY OF WATER-BOMBER ACCIDENTS 1970-1973

**Q0070** **Bell 47G4A** **C-FSYU**  
DATE: 8 September 70 1340 EST  
OPERATION: Specialty-A-Control DAMAGE: Substantial  
PLACE: 30 miles NE Baie Comeau, Quebec 49/36N 67/42W  
LOCALE: Clearing 50 by 35, 800 asl.  
WEATHER: Cloud 600 scattered, vis. 15, temp. 58, wind S 5  
PILOT: Sr. Commercial  
TOTAL HOURS: 6370 ALL 1021 ON TYPE  
LAST 90 DAYS: 310 ALL 310 ON TYPE  
CASUALTIES: Crew: 1 uninj; pass: 1 minor, 1 uninj.  
OCCURRENCE: During flight at low airspeed the pilot lost effective tail rotor control. During the ensuing emergency landing the helicopter struck the ground in a rotation to the right; damage to the extension tube and tail rotor was sustained.

**P1055** **Grumman TBM3** **C-FMXN**  
DATE: 31 July 71 1831 PST  
OPERATION: Specialty-AC DAMAGE: Substantial  
PLACE: Kamloops Airport, B.C. 50/43N 120/25W  
LOCALE: River 1130 asl.  
WEATHER: Sky clear, vis. 15, temp. 104, wind calm  
PILOT: Commercial  
TOTAL HOURS: 7785 ALL 125 ON TYPE  
LAST 90 DAYS: 125 ALL 125 ON TYPE  
CASUALTIES: Crew: 1 uninj.  
OCCURRENCE: Shortly after takeoff the engine began to run rough. After an unsuccessful attempt to dump his load the pilot ditched the aircraft in the river. The wrong fitting had been installed in the line at the fuel pump inlet, and this chafed a hole in the hose.

**P1057** **Grumman TBM3** **C-FKCF**  
DATE: 8 August 71 1929 PST  
OPERATION: Specialty-AC DAMAGE: Substantial  
PLACE: Winfield, B.C. 50/02N 119/23W  
LOCALE: Small clearing 1500 asl.  
WEATHER: Sky clear, vis. 15, temp. 92, wind calm  
PILOT: Commercial  
TOTAL HOURS: 6500 ALL 1050 ON TYPE  
LAST 90 DAYS: 175 ALL 75 ON TYPE  
CASUALTIES: Crew: 1 uninj.  
OCCURRENCE: The engine failed shortly after takeoff. When attempts to restore power were unsuccessful the pilot landed wheels-up in a field after dumping his load.

**P10059****Douglas A26****C-FDFC**

DATE: 10 August 71 1738 MST

OPERATION: Specialty-AC

DAMAGE: Substantial

PLACE: Prince George Airport, B.C. 53/53N 122/41W

LOCALE: Paved runway 5770 by 150, 2268 asl.

WEATHER: Cloud 7000 scattered, vis. 15, temp. 84, wind N 6

PILOT: Sr. Commercial

TOTAL HOURS: 8000 ALL 190 ON TYPE

LAST 90 DAYS: 175 ALL 175 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: As the pilot applied brakes in the landing runout the left main gear collapsed. It was found that the pilot had lowered the gear just before touchdown, and it was not down and locked at touchdown, causing failure of the sleeve attached to the hydraulic actuator and latch lock assembly.

**Ø20048****de Havilland DHC2****C-FØEØ**

DATE: 26 May 72 1215 EST

OPERATION: State

DAMAGE: Substantial

PLACE: 5 mi. NW of Kirkland Lake, Ontario 48/11N 80/02W

LOCALE: Lake 3000 by 1500, 1050 asl.

WEATHER: Sky clear, vis. 15, temp. 78, wind SE 9

PILOT: Commercial

TOTAL HOURS: 10000 ALL 1300 ON TYPE

LAST 90 DAYS: 60 ALL 60 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: On landing the aircraft struck water in a nose down left wing low attitude. The front of the left float dug into the water and broke off. It was found that the pilot did not level off correctly, possibly because his judgment was affected by fatigue.

**A1020****Snow Commander 600S2D****C-FUNR**

DATE: 4 September 71 1725 AST

OPERATION: Specialty-Non-Revenue

DAMAGE: Substantial

PLACE: Dunphy, N.B. 46/31N 66/31W

LOCALE: Paved runway, 2900 by 70, 1000 asl.

WEATHER: Sky clear, vis. 15, wind SE 15

PILOT: Sr. Commercial

TOTAL HOURS: 1475 ALL 13 ON TYPE

LAST 90 DAYS: 175 ALL 13 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During take-off roll, directional control was lost; the aircraft plowed through trees for about 50 feet and came to rest in an upright position. The pilot's total time on the aircraft type represented the pilot's total experience on aircraft with conventional undercarriage.

**W1801**

**Consolidated PB5A**

**C-FHTN**

DATE: 1 September 71 1445 MST  
OPERATION: Specialty-AC                      DAMAGE: Destroyed  
PLACE: 60 Mi. NW Fort Smith, N.W.T. 60/35N 113/16W  
LOCALE: Forest clearing  
WEATHER: Sky clear, vis. 15, temp. 70, wind NW 10  
PILOT: Air Trans  
TOTAL HOURS:                      7908                      ALL                      961                      ON TYPE  
LAST 90 DAYS:                      245                      ALL                      245                      ON TYPE  
CASUALTIES: Crew: 2 killed  
OCCURRENCE: The aircraft was being flown on a water-bombing mission but was diverted to search for a helicopter which had crashed in the fire area. While circling the area where visibility was restricted in smoke, it collided with another aircraft which was on the same mission. There was no radio communication between aircraft.

**W1802**

**Consolidated PB5A**

**C-FIDS**

DATE: 1 September 71 1445 MST  
OPERATION: Specialty-AC                      DAMAGE: Destroyed  
PLACE: 60 mi. NW of Fort Smith, N.W.T. 60/35N 113/16W  
LOCALE: Mid air collision  
WEATHER: Sky clear, vis. 15, temp. 70, wind NW 10  
PILOT: Air Trans  
TOTAL HOURS:                      5025                      ALL                      400                      ON TYPE  
LAST 90 DAYS:                      193                      ALL                      193                      ON TYPE  
CASUALTIES: Crew: 2 killed  
OCCURRENCE: The aircraft was circling in a search for a helicopter which had crashed in the fire area. While circling the area in which visibility was restricted by smoke it collided with a similar type of aircraft on a similar mission. There was no radio communication between aircraft.

**P1059**

**Douglas A26**

**C-FDFC**

DATE: 10 August 71 1738 MST  
OPERATION: Specialty-AC                      DAMAGE: Substantial  
PLACE: Prince George Airport, B.C. 53/53N 122/41W  
LOCALE: Paved runway 5770 by 150, 2268 asl.  
WEATHER: Cloud 7000 scattered, vis. 15, temp. 84, wind N 6  
PILOT: Sr. Commercial  
TOTAL HOURS:                      8000                      ALL                      190                      ON TYPE  
LAST 90 DAYS:                      175                      ALL                      175                      ON TYPE  
CASUALTIES: Crew: 1 uninj.  
OCCURRENCE: During the approach to land the gear failed to extend fully; the aircraft landed hard and bounced. When brakes were applied the left gear collapsed and the aircraft skidded off the runway. A small fire developed but was extinguished by the use of airport fire equipment.

**P20079****Grumman TBM3****C-FKCN**

DATE: 27 August 72 1300 PST

OPERATION: Specialty-AC

DAMAGE: Substantial

PLACE: Angus Horne Lake, B.C. 52/22N 119/50W

LOCALE: Lake 4000 by 400, 3000 asl.

WEATHER: Sky clear, vis. 10, temp. 65, wind calm

PILOT: Commercial

TOTAL HOURS: 11000 ALL 94 ON TYPE

LAST 90 DAYS: 120 ALL 80 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During cruise, puffs of black smoke emanated from the engine area and a black oil streak formed at the wing-root. The aircraft was flown towards a nearby air-strip; however the oil pressure failed enroute. The pilot selected a shallow mountain lake and successfully ditched the aircraft. An oil system hose located below the exhaust collector had perished because of excessive ground running of the aircraft.

**W30072****Bell 47G2****C-FKNC**

DATE: 2 AUGUST 73 1845 MST

OPERATION: Specialty-AC

DAMAGE: Substantial

PLACE: Fort Providence, N.W.T. 61/15N 119/02W

LOCALE: River 500 asl.

WEATHER: Sky clear, vis. 15, temp. 70

PILOT: Commercial

TOTAL HOURS: 880 ALL — ON TYPE

LAST 90 DAYS: 165 ALL — ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The helicopter was dipping a barrel which did not sink immediately, allowing the cable to hook over the heel of one skid. The aircraft was pulled into the water on its side.

**Ø30095****de Havilland DHC6****C-FOPI**

DATE: 3 August 73 Unknown

OPERATION: State

DAMAGE: Substantial

PLACE: Moosonee, Ontario 51/16N 80/39W

LOCALE: River 10000 by 400, 0 asl.

WEATHER: Cloud high scattered, vis. 15, temp. 73, wind E 5

PILOT: Air Trans

TOTAL HOURS: 6462 ALL 1200 ON TYPE

LAST 90 DAYS: 160 ALL 98 ON TYPE

CASUALTIES: Crew: 2 uninj; Pass: 7 uninj.

OCCURRENCE: During a glassy water landing the right bomb doors came open causing a violent turn to the right. Both doors were ripped off by water pressure. The water bomb door seals were found to be ineffective.



**P30070**

**Grumman TBM3**

**C-FMXN**

DATE: 19 August 73 1410 PST

OPERATION: Specialty-AAD

DAMAGE: Substantial

PLACE: Moyle Lake, B.C. 49/25N 115/50W

LOCALE: Unknown

WEATHER: Sky clear, vis. 10

PILOT: Commercial

TOTAL HOURS: 8000

ALL 225

ON TYPE

LAST 90 DAYS: 200

ALL 200

ON TYPE

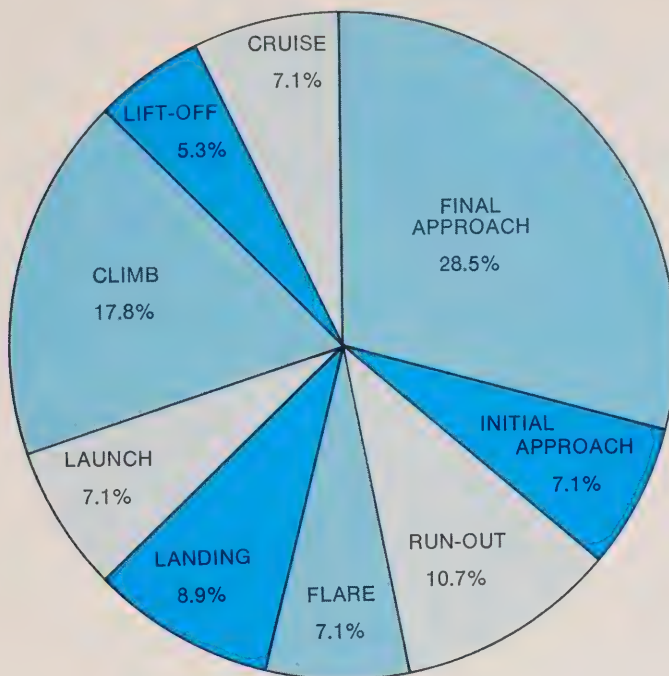
CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The aircraft had dropped water on a fire and was climbing out with visibility impaired by smoke when the pilot saw a large tree ahead. The elevator struck the tree and control was impaired to the extent that the pilot was forced to bail out.



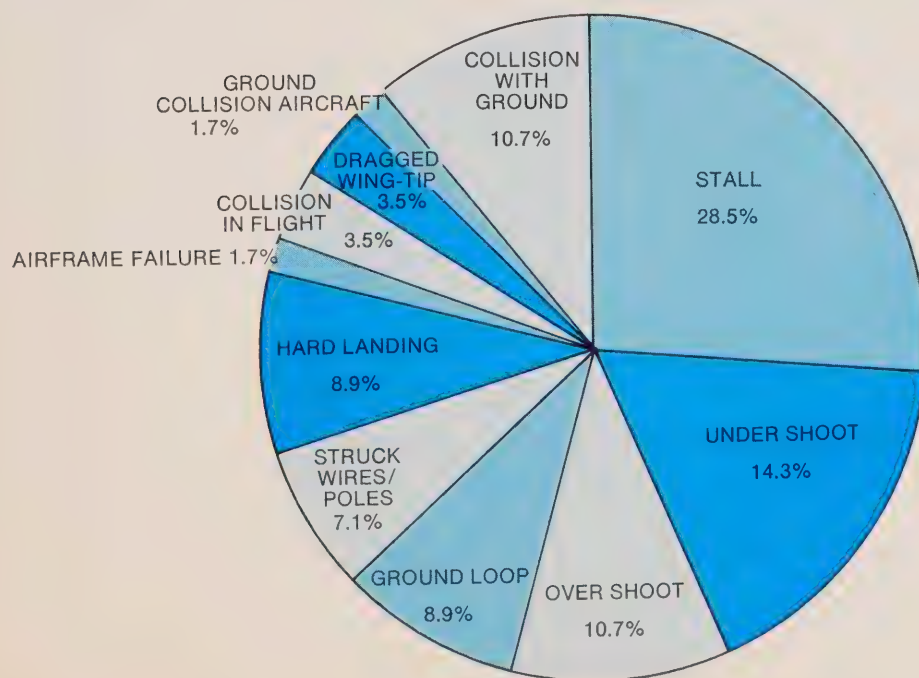
1970-1974

## GLIDER ACCIDENTS — BY PHASE OF FLIGHT



1970-1974

## GLIDER ACCIDENTS — BY TYPE OF ACCIDENT



1973

**GLIDER ACTIVITY — CLUBS**

TOTAL CLUBS IN CANADA	46
TOTAL CLUBS REPORTING	34
TOTAL LAUNCHES, BY CLUB	34,073
TOTAL HOURS FLOWN	10,849

**GLIDER ACTIVITY — PRIVATE****GLIDERS 1964-1974**

	On Register	Accidents	Fatalities	Ser. Inj.
1964	151	4	2	1
1965	170	3	1	—
1966	189	4	—	3
1967	202	5	2	1
1968	216	4	—	1
1969	229	7	4	2
1970	245	8	1	—
1971	255	7	1	2
1972	275	10	—	2
1973	302	10	—	—
1974	339	22	3	3

# SUMMARY OF SPECIFIC GLIDER ACCIDENTS 1970-1974

## **O0107** **Schweizer SGS233A Glider** **C-FXAE**

DATE: 7 November 70 1220 EST

OPERATION: Private-training DAMAGE: Substantial

PLACE: 44/02N 79/48W, Tottenham, Ontario

LOCALE: Grass runway 2200 by 150, 800 asl.

WEATHER: Cloud 3000 scattered, vis. 15, temp. 47, wind NNW 10

PILOT: Glider

TOTAL HOURS:	1445	ALL	55	ON TYPE
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LAST 90 DAYS:	8	ALL	8	ON TYPE
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CASUALTIES: Crew: 1 serious; 1 uninj.

OCCURRENCE: The aircraft did not lose sufficient altitude from a high approach and stalled attempting to clear trees at the end of the runway.

## **O1037** **Schempp Hirth Glider** **C-FPHH**

DATE: 16 May 71 1230 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 43/18N 80/06W, Rockton, Ontario

LOCALE: Grass strip, 2500 by 200, 840 asl.

WEATHER: Cloud 10000 broken, vis. 6, temp. 66, wind W 6-17

PILOT: Glider

TOTAL HOURS:	175	ALL	76	ON TYPE
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LAST 90 DAYS:	13	ALL	6	ON TYPE
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CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During a crosswind towed take-off, the pilot could not maintain directional control. The tow was released, the glider swung into wind and struck the ground in a wing down attitude.

## **Q1029** **Schweizer SGS233A Glider** **C-FYWL**

DATE: 16 May 71 1715 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 45/37N 75/24W, Buckingham, Quebec

LOCALE: Gravel runway, 3100 by 100, 550 asl.

WEATHER: Cloud 4000 scattered, vis. 15, temp. 70, wind SSW 15-20

PILOT: Glider

TOTAL HOURS:	395	ALL	36	ON TYPE
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LAST 90 DAYS:	20	ALL	9	ON TYPE
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CASUALTIES: Crew: 1 uninj; pass: 1 serious

OCCURRENCE: The tow rope broke at 200 feet, the glider stalled during a turn back to the field and struck the ground at a steep angle.

## **O1043** **Schweizer SGS126 Glider** **C-FAZF**

DATE: 30 May 71 1400 EST

OPERATION: Private-training DAMAGE: Substantial

PLACE: 45/40N 77/36W, Bonnechere Airport, Ontario

LOCALE: Aerodrome, 600 asl.

WEATHER: Cloud 3000 scattered, vis. 15, temp. 80, wind SW 8

PILOT: Glider

TOTAL HOURS:	1200	ALL	4	ON TYPE
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LAST 90 DAYS:	4	ALL	4	ON TYPE
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CASUALTIES: Crew: 1 minor

OCCURRENCE: The glider detached from the tow rope at 300 feet during a car towed take-off. The pilot was unable to maintain control during a crosswind landing and the glider struck the ground in a nose and wing down attitude.

<b>Q1050</b>	<b>Schempp Hirth SH1</b>	<b>C-FRSO</b>
DATE: 15 July 71 1400 EST		
OPERATION: Private-recreation		DAMAGE: Substantial
PLACE: 45/42N 74/05W, St. Scholastique, Quebec		
LOCALE: Farm field, 1000 by 600, 225 asl.		
WEATHER: Sky clear, vis. 15, temp. 75, wind N 15		
PILOT: Glider		
TOTAL HOURS:	700	ALL 300 ON TYPE
LAST 90 DAYS:	40	ALL 30 ON TYPE
CASUALTIES: Crew: 1 uninj.		
OCCURRENCE: Soaring conditions deteriorated and the pilot landed in a field but could not stop before hitting the fence.		
<b>W1060</b>	<b>Scheibe LS55 Glider</b>	<b>C-FRXZ</b>
DATE: 21 August 71 1315 MST		
OPERATION: Private-recreation		DAMAGE: Substantial
PLACE: 50/43N 114/12W, Black Diamond, Alta.		
LOCALE: Grass runway, 2200 by 1000, 3100 asl.		
WEATHER: Sky clear, vis. 15, temp. 86, wind SW 10		
PILOT: Glider		
TOTAL HOURS:	450	ALL 30 ON TYPE
LAST 90 DAYS:	5	ALL 5 ON TYPE
CASUALTIES: Crew: 1 uninj.		
OCCURRENCE: The tow plane could not maintain height after take-off. The glider released at 100 feet and struck a fence after touchdown in a field.		
<b>Q1101</b>	<b>Schweizer SGS233A</b>	<b>C-FDWB</b>
DATE: 6 November 71 1330 EST		
OPERATION: Private-training		DAMAGE: Minor
PLACE: 45/37N 74/39W, near Hawkesbury Airport, Quebec		
LOCALE: Clearing 1000 by 200, 167 asl.		
WEATHER: Cloud 14000 scattered, vis. 15, temp. 55, wind S 20		
PILOT: Student		
TOTAL HOURS:	8	ALL 8 ON TYPE
LAST 90 DAYS:	8	ALL 8 ON TYPE
CASUALTIES: Crew: 1 serious		
OCCURRENCE: The pilot encountered a headwind on approach and landed short of the runway. The airspeed was low and the aircraft struck the ground heavily.		
<b>O20054</b>	<b>Blanik L13 Glider</b>	<b>C-FJIL</b>
DATE: 10 June 72 1430 EST		
OPERATION: Private-recreation		DAMAGE: Destroyed
PLACE: 43/18N 80/06W, Rockton, Ontario		
LOCALE: Farm field 300 by 150, 845 asl.		
WEATHER: Cloud 4500 scattered, vis. 15, temp. 53, wind NNW 16-21		
PILOT: Glider		
TOTAL HOURS:	52	ALL 10 ON TYPE
LAST 90 DAYS:	7	ALL 3 ON TYPE
CASUALTIES: Crew: 1 uninj.		
OCCURRENCE: The aircraft failed to reach its intended landing field because of strong gusty winds and struck a tree attempting a landing in a confined area.		



**C40058****Schweizer 2-22E Glider****C-FACD**

DATE: 2 June 74 1235 CST

OPERATION: Private-demonstration DAMAGE: Substantial

PLACE: 52/59N 105/25W, Birch Hills, Sask

LOCALE: Farm airstrip, 2500 by 350, 1500 asl.

WEATHER: Cloud high scattered, vis. 15, temp. 60, wind S 10 + 20

PILOT: Private &amp; Glider

TOTAL HOURS: 344 ALL 35 ON TYPE

LAST 90 DAYS: 30 ALL 10 ON TYPE

CASUALTIES: Crew: 1 minor; pass: 1 uninj.

OCCURRENCE: The pilot was too high on final approach and decided to make a 360° turn to lose altitude. The glider stalled during the turn and crashed.

**Ø40104****Schweizer 2-33A Glider****C-GCLH**

DATE: 24 August 74 1310 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 48/44N 80/48W, Iroquois Falls, Ontario

LOCALE: Soil strip, 2000 by 75, 246 asl.

WEATHER: Sky clear, vis. 15, temp. 62, wind NNW 10

PILOT: Glider

TOTAL HOURS: 33 ALL 30 ON TYPE

LAST 90 DAYS: 6 ALL 6 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The glider was being winch launched when at an altitude of about 20 feet the winch motor lost power. The pilot jettisoned the tow rope which became tangled with the left wing; the glider struck the ground heavily and groundlooped.

**Q0032****Schweizer 1-26C Glider****C-FSEI**

DATE: 7 June 70 1305 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: St. Phillips d'Argenteuil, Quebec

LOCALE: Soil clearing 1050 by 1000, 225 asl.

WEATHER: Cloud 3000 broken, vis. 15, temp. 80, wind variable 2

PILOT: Glider

TOTAL HOURS: 400 ALL 20 ON TYPE

LAST 90 DAYS: 5 ALL 2 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The pilot continued to fly away from the aerodrome until an off aerodrome landing was unavoidable. The glider touched down long in the selected field and the pilot groundlooped intentionally to avoid obstructions.

**Ø20089****Schliecher K8-B Glider****C-FZKQ**

DATE: 20 August 72 1400 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: Strathroy, Ontario 43/00N 81/34W

LOCALE: Soil clearing 1000 by 750, 800 asl.

WEATHER: Cloud 5000 broken, vis. 15, temp. 80, wind S 5

PILOT: Private

TOTAL HOURS: 100 ALL 25 ON TYPE

LAST 90 DAYS: — ALL — ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: Following a lengthy cross-country the pilot elected to land in a farm field. The pilot did not see a fence crossing the landing area and he was forced to ground-loop the glider intentionally to avoid colliding with it.



**W0057****Homebuilt Tern Glider****C-FXLS**

DATE: 18 JULY 70 1347 MST

OPERATION: Private-recreation DAMAGE: Destroyed

PLACE: Red Deer Airport, Alberta 52/11N 113/54W

LOCALE: Swamp 2000 by 2000, 2468 asl.

WEATHER: Cloud 7000 broken, vis. 15, temp. 69, wind SE 11

PILOT: Private

TOTAL HOURS: 340 ALL 25 ON TYPE

LAST 90 DAYS: 10 ALL 1 ON TYPE

CASUALTIES: Crew: 1 killed

OCCURRENCE: Shortly after being towed aloft the pilot experienced control difficulties and pulled the tow release. The aircraft then stalled and crashed. The glider was overweight and its centre of gravity was near the aft limit.

**Ø40125****Kestrel 19 Glider****CF-FEI**

DATE: 27 Oct. 74 1640 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 43/51N 80/27W Arthur, Ontario

LOCALE: Soil clearing 2000 by 225, 1550 asl.

WEATHER: Cloud 2000 scattered, vis. 15, temp. 44, wind SE 11

PILOT: Glider

TOTAL HOURS: 152 ALL 1 ON TYPE

LAST 90 DAYS: 20 ALL 1 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: On final approach a 360° turn was initiated to increase distance from a preceding glider. The glider stalled during the turn and spun to the ground.

**Ø40802****Schweizer SGS-1-26F Glider****CG-ØEI**

DATE: 21 Sept. 74 1535 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 43/53N 80/28W Arthur, Ontario

LOCALE: Clearing 1550 asl.

WEATHER: Cloud 3000 scattered, vis. 15, temp. 56, wind NNW 10

PILOT: Private

TOTAL HOURS: 56 ALL 2 ON TYPE

LAST 90 DAYS: 5 ALL 2 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: Two gliders were soaring in the same thermal and came very close to one another. Both pilots saw each other and in an attempt to avoid collision the other glider turned but skidded into CG-ØEI. Although damaged a safe landing was completed.

**Q40069****Kestrel Glider****CF-YAV**

DATE: 15 July 74 1505 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 45/46N 75/10W Hawkesbury, Que.

LOCALE: Soil clearing 2000 by 2000, 235 asl.

WEATHER: Cloud 3500 scattered, vis. 15, temp. 80, wind NW 15

PILOT: Commercial &amp; Glider

TOTAL HOURS: 1060 ALL 130 ON TYPE

LAST 90 DAYS: 36 ALL 21 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During the landing roll out in high grass, directional control was lost and the glider groundlooped.

**Q0033****Bergfalke II Glider****C-FYWH**

DATE: 31 May 70 1430 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: Sherbrooke, Quebec 45/25N 71/54W

LOCALE: Gravel strip 2600 by 75, 785 asl.

WEATHER: Sky clear, vis. 15, temp. 75, wind SW 15

PILOT: Glider

TOTAL HOURS:	7	ALL	—	ON TYPE
LAST 90 DAYS:	—	ALL	—	ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During a winch launch the tow cable broke when the glider had reached 600 feet. The pilot attempted an immediate downwind landing and the aircraft struck trees and nosed over into the ground.

**A40023****Schweizer Glider****C-FUOD**

DATE: 2 September 74 1430 AST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 45/05N 64/40W Waterville Airport, N.S.

LOCALE: Soil strip, 100 asl.

WEATHER: Cloud 5000 overcast, vis. 8, wind calm

PILOT: Private

TOTAL HOURS:	152	ALL	1	ON TYPE
LAST 90 DAYS:	1	ALL	1	ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The initial approach appeared low, on final approach the spoilers were selected momentarily. This resulted in a high sink rate and the aircraft touched down short of the runway.

**W40112****Schweizer Glider****C-FOYP**

DATE: 19 October 74 1223 MST

OPERATION: Private-demonstration DAMAGE: Substantial

PLACE: 50/45N 113/41W, Third Lake, Alberta

LOCALE: Soil clearing, 4500 by 200, 3600 asl.

WEATHER: Sky clear, vis. 15, temp. 70, wind SSE 10

PILOT: Glider

TOTAL HOURS:	32	ALL	32	ON TYPE
LAST 90 DAYS:	20	ALL	20	ON TYPE

CASUALTIES: Crew: 1 minor; pass: 1 uninj.

OCCURRENCE: The pilot, realizing he was low on final approach turned to avoid power lines; in the turn the low wing struck a cow and the aircraft crashed.

**C40109****Schreder HP14T Glider****C-FHPI**

DATE: 29 August 74 1530 CST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 49/57N 97/36W, Pigeon Lake, Manitoba

LOCALE: Soil strip, 2800 by 300, 785 asl.

WEATHER: Cloud 4500 broken, vis. 15, temp. 62, wind WSW 10

PILOT: Glider

TOTAL HOURS:	310	ALL	70	ON TYPE
LAST 90 DAYS:	15	ALL	14	ON TYPE

CASUALTIES: None

OCCURRENCE: Directional control was not attained during take-off and the glider had turned approximately 70 degrees before the tow cable was released.

**A40001****Schweizer 2-22 Glider****C-FBJG**

DATE: 5 January 74 1500 AST

OPERATION: Private-training

DAMAGE: Substantial

PLACE: 45/25N 63/27W Debert, N.S.

LOCALE: Soil clearing, 139 asl.

WEATHER: Sky clear, vis. 10, temp. 19, wind WNW 10

PILOT: Private

TOTAL HOURS: 260 ALL 110 ON TYPE

LAST 90 DAYS: 1 ALL 1 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The aircraft lost lift and developed a high sink on the approach and landed in trees short of the runway.

**Q30119****Kestrel T59D Glider****C-FKKO**

DATE: 8 October 72 1200 EST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 47/31N 70/23W Baie St-Paul, Quebec

LOCALE: Farm field 1600 by 400

WEATHER: Sky clear, vis. 15, temp. 52, wind calm

PILOT: Glider

TOTAL HOURS: 322 ALL — ON TYPE

LAST 90 DAYS: — ALL — ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During the final turn onto approach at low level the airspeed decayed and the glider landed heavily in a wing down attitude.

**O40044****Schweizer SGU2-22CK Glider****C-FOZS**

DATE: 19 May 74 1549 EST

OPERATION: Private-training

DAMAGE: Substantial

PLACE: 44/16N 79/55W Borden, Ontario

LOCALE: Soil clearing 600 by 600, 730 asl.

WEATHER: Sky clear, vis. 15, temp. 63, wind NE 10

PILOT: Private

TOTAL HOURS: 69 ALL 4 ON TYPE

LAST 90 DAYS: 1 ALL 1 ON TYPE

CASUALTIES: Crew: 1 minor

OCCURRENCE: While searching for thermals the aircraft strayed away from its landing area and was damaged landing in a field scattered with stumps.

**O40068****Schweizer SGU-222E Glider****C-FWTY**

DATE: 2 June 74 1600 EST

OPERATION: Private-FT

DAMAGE: Substantial

PLACE: 43/18N 80/06W Rockton, Ontario

LOCALE: Clearing 800 by 450, 815 asl.

WEATHER: Cloud 5000 scattered, vis. 15, temp. 70, wind SW 4

PILOT: Commercial

TOTAL HOURS: 675 ALL 12 ON TYPE

LAST 90 DAYS: 3 ALL 1 ON TYPE

CASUALTIES: Crew: 1 uninj; pass: 1 uninj.

OCCURRENCE: The glider pilot on a local flight encountered a high sink area and abbreviated his circuit. A further high sink area on short base resulted in a forced landing in a ploughed field.



**O30101****Schwarzwald Flugzeubau Glider****C-FZPQ**

DATE: 19 August 73 1627 EST

OPERATION: Private-training DAMAGE: Substantial

PLACE: 43/50N 80/26W, Arthur, Ontario

LOCALE: Soil runway 800 by 800, 1550 asl.

WEATHER: Cloud 4000 scattered, vis. 5, temp. 73, wind calm

PILOT: Student

TOTAL HOURS: 19 ALL 1 ON TYPE

LAST 90 DAYS: 19 ALL 1 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The aircraft overshot the intended landing area and landed in an adjoining field where it was necessary to intentionally groundloop to avoid telephone poles.

**O30104****Blanik L-13 Glider****C-FTVT**

DATE: 25 September 73 1634 EST

OPERATION: Private-training DAMAGE: Substantial

PLACE: 44/12N 77/19W, Belleville Airport, Ontario

LOCALE: Soil strip 3400 by 200, 320 asl.

WEATHER: Sky clear, vis. 5, temp. 85, wind NNE 5

PILOT: Glider

TOTAL HOURS: 77 ALL 2 ON TYPE

LAST 90 DAYS: 21 ALL 2 ON TYPE

CASUALTIES: Crew: 2 uninj.

OCCURRENCE: The glider did not maintain sufficient altitude to reach the runway and was damaged landing short on rough ground.

**O30123****Schweizer Glider****C-FZBB**

DATE: 29 September 73 1409 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 44/45N 80/03W, LaFontaine, Ontario

LOCALE: Field 4500 by 50, 750 asl.

WEATHER: Cloud 3500 scattered, vis. 15, temp. 59, wind NNW 10

PILOT: Glider

TOTAL HOURS: 20 ALL 11 ON TYPE

LAST 90 DAYS: 11 ALL 11 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The pilot pulled the tow release by mistake at low level during a towed take-off. The aircraft stalled into trees while attempting to return to the take-off area for landing.

**Q30058****Schweizer SGU 2 Glider****C-FZEG**

DATE: 14 June 73 1230 EST

OPERATION: Private-recreation DAMAGE: None

PLACE: 45/25N 72/41W, Granby, Quebec

LOCALE: Soil strip, 2600 by 75, 250 asl.

WEATHER: Cloud 3000 scattered, vis. 15, temp. 70, wind WSW 10

PILOT: Private

TOTAL HOURS: 1100 ALL 200 ON TYPE

LAST 90 DAYS: 100 ALL 1 ON TYPE

CASUALTIES: Crew: 1 serious

OCCURRENCE: The weak link in the tow cable broke during a winch launch and the glider landed straight ahead. It leveled off high, stalled and dropped heavily to the ground.

**W30031****Blanik L13 Glider****C-FHVX**

DATE: 21 May 73 1510 MST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 56/19N 121/01W, Fort St. John, B.C.

LOCALE: Soil runway, 1500 by 100, 2300 asl.

WEATHER: Cloud 6000 scattered, vis. 15, temp. 59, wind W 13 + 25

PILOT: Glider and Private

TOTAL HOURS: 1390 ALL 21 ON TYPE

LAST 90 DAYS: 50 ALL 21 ON TYPE

CASUALTIES: Crew: 1 uninj; pass: 1 uninj.

OCCURRENCE: After touchdown in gusty wind conditions one wing dug into the ground.

**O30041****Schweizer Glider****C-FACF**

DATE: 2 June 73 1718 EST

OPERATION: Private-training

DAMAGE: Substantial

PLACE: 48/25N 80/18W, Ramore, Ontario

LOCALE: Gravel strip, 2900 by 300, 1000 asl.

WEATHER: Cloud 2500 scattered, vis. 15, temp. 66, wind calm

PILOT: Private and Glider

TOTAL HOURS: 29 ALL 14 ON TYPE

LAST 90 DAYS: 18 ALL 17 ON TYPE

CASUALTIES: Crew: 2 minor

OCCURRENCE: After a simulated tow rope break a wing dropped just prior to touchdown it dug into the ground and pitched the glider up onto its nose.

**O30059****Scheibe Glider****C-FACN**

DATE: 23 June 73 1300 EST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 44/16N 79/56W, Camp Borden, Ontario

LOCALE: Clearing 3500 by 200, 730 asl.

WEATHER: Cloud 25000 broken, vis. 15, temp. 67, wind WNW 13

PILOT: Glider

TOTAL HOURS: 1600 ALL 200 ON TYPE

LAST 90 DAYS: 10 ALL 10 ON TYPE

CASUALTIES: Crew: 1 uninj; outside A/C: 2 minor

OCCURRENCE: The glider was being readied for a winch launch when a jeep crossed the cable and snagged it. The glider was jerked forward and struck two ground crew.

**O30063****Schweizer Glider****C-FFO.**

DATE: 4 July 73 1627 EST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 43/46N 80/03W, Erin, Ontario

LOCALE: Soil strip 2000 by 150, 1400 asl.

WEATHER: Cloud 3000 scattered, vis. 6, temp. 70, wind, SSE 4

PILOT: Glider

TOTAL HOURS: 20 ALL 20 ON TYPE

LAST 90 DAYS: — ALL — ON TYPE

CASUALTIES: Crew: 1 uninj; pass: 1 uninj.

OCCURRENCE: During a spot landing the aircraft rounded out high, stalled, struck the ground bounced to one side and struck a trailer.



**O30089****Schweizer SGS2-23 Glider****C-FDXP**

DATE: 29 July 73 1130 EST

OPERATION: Private-training

DAMAGE: Substantial

PLACE: 47/30N 79/41W, New Liskeard, Ontario

LOCALE: Soil strip 800 asl.

WEATHER: Cloud 3000 scattered, vis. 15, temp. 69, wind SW 6

PILOT: Private

TOTAL HOURS: 268 ALL 1 ON TYPE

LAST 90 DAYS: 9 ALL 1 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: On take-off the glider did not attain sufficient altitude. The pilot attempted to return to the runway but landed short in a field and struck a tree.

**O20060****Pirat SZD-30 Glider****C-FZAM**

DATE: 28 June 72 1215 EST

OPERATION: Private-recreation

DAMAGE: Destroyed

PLACE: 43/45N 80/03W, 3 miles East of Erin, Ontario

LOCALE: Gravel road 2500 by 100, 1400 asl.

WEATHER: Cloud 3200 scattered, vis. 12, temp. 75, wind SSE 5

PILOT: Glider

TOTAL HOURS: 22 ALL 1 ON TYPE

LAST 90 DAYS: 7 ALL 1 ON TYPE

CASUALTIES: Crew: 1 minor

OCCURRENCE: The air brakes deployed during take-off. The tow pilot noticed this and signalled the other pilot who released thinking the tow plane was in trouble. On the approach the pilot noticed the brakes deployed, retracted them, the aircraft stalled and struck the ground in a nose and wing down attitude.

**A20023****Schweizer Glider****C-FBJH**

DATE: 3 September 72 1153 AST

OPERATION: Private-training

DAMAGE: Substantial

PLACE: 45/59N 65/19W, Havelock, N.B.

LOCALE: Soil runway, 3000 by 100

WEATHER: Vis. 10, wind SSW 5-10

PILOT: Student

TOTAL HOURS: 165 ALL 19 ON TYPE

LAST 90 DAYS: 7 ALL 19 ON TYPE

CASUALTIES: Crew: 1 uninj; pass: 1 uninj.

OCCURRENCE: Spoilers were extended prior to touch down, the landing was hard and the aircraft swung off the runway into trees.

**C20098****Glider Landplane****C-FHPI**

DATE: 27 August 72 1153 CST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 49/57N 97/36W, Pigeon Lake, Man.

LOCALE: Soil runway, 2400 by 150, 885 asl.

WEATHER: Sky clear, vis. 15, temp. 80, wind SSW 15

PILOT: Commercial

TOTAL HOURS: 506 ALL 4 ON TYPE

LAST 90 DAYS: 79 ALL 4 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The aircraft swung during a crosswind take-off attempt and the tow cable could not be released until the glider had swung through 180.

**W20038****Sweizer SGU-2-22E Glider****C-FACD**

DATE: 25 June 72 1700 CST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 52/02N 107/59W, 1/2 mile south Biggar, Sask.

LOCALE: Soil runway, 5000 by 1200, 2130 asl.

WEATHER: Sky clear, vis. 15, wind SSE 15-18

PILOT: Private

TOTAL HOURS: — ALL — ON TYPE

LAST 90 DAYS: — ALL — ON TYPE

CASUALTIES: Crew: 1 minor; pass: 1 minor

OCCURRENCE: During a winch launch the cable broke when the glider reached 400 feet. The aircraft was damaged when a wing tip struck the ground during a turn at low altitude.

**Q20050****Glider****C-FRED**

DATE: 11 June 72 1515 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 47/00N 72/00W, St. Casimir, Quebec

LOCALE: Clearing 3000 by 350

WEATHER: Cloud 6500 scattered, vis. 15, temp. 65, wind W 15 + 25

PILOT: Private

TOTAL HOURS: — ALL — ON TYPE

LAST 90 DAYS: — ALL — ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The glider bounced during a crosswind landing, swung off heading and ground looped after touching down the second time.

**Q20107****Schweizer 2-22CK****C-FZEC**

DATE: 23 September 72 1044 EST

OPERATION: Private-recreation DAMAGE: Substantial

PLACE: 45/37N 75/24W, Buckingham, Quebec

LOCALE: Field 2300 by 100, 215 asl.

WEATHER: Sky clear, vis. 15, temp. 50, wind SW 15

PILOT: Private

TOTAL HOURS: 57 ALL 18 ON TYPE

LAST 90 DAYS: 20 ALL 18 ON TYPE

CASUALTIES: Crew: 1 uninj; pass: 1 uninj.

OCCURRENCE: The glider was prematurely released at 100 feet after take-off. Being unable to return to the airport the aircraft was forced landed into trees.

**W20060****Schweizer SGU2-22E****C-FACD**

DATE: 2 August 72 1500 MST

OPERATION: Private-training DAMAGE: Substantial

PLACE: 52/11N 113/54W, Penhold Airport, Alta.

LOCALE: Soil runway 1000 by 100, 2969 asl.

WEATHER: Sky clear, vis. 15, temp. 68, wind SSW 18

PILOTE: Student

TOTAL HOURS: 4 ALL 4 ON TYPE

LAST 90 DAYS: 4 ALL 4 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The aircraft drifted to one side during the approach and struck the wing of parked glider just prior to touchdown.

**O20070****Schleicher KA6E****C-FAJH**

DATE: 28 July 72 1830 EST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 43/43N 80/02W, Fergus, Ontario

LOCALE: Clearing 6000 by 1000, 1400 asl.

WEATHER: Cloud 3500 scattered, vis. 15, temp. 68, wind NNW 6

PILOT: Glider

TOTAL HOURS: 350 ALL 100 ON TYPE

LAST 90 DAYS: 30 ALL 30 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: The glider was unable to maintain altitude and forced landed into a small field.  
An intentional groundloop was necessary to avoid colliding with trees.

**C0054****Schweizer SGU2 Glider****C-FXUB**

DATE: 3 June 70 1504 CST

OPERATION: Private-training

DAMAGE: Substantial

PLACE: 49/59N 97/41W Pigeon Lake, Man.

LOCALE: Grassy farm field

WEATHER: Cloud 30000 scattered, vis. 15, temp. 82, wind WSW 17 gusty

PILOT: Private

TOTAL HOURS: 63 ALL 2 ON TYPE

LAST 90 DAYS: 2 ALL 2 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: Pilot misjudged circuit and forced landed. Left wing hit ground and spun glider around.

**C0084****Briegleb BG12A Glider****C-FRCW**

DATE: 19 July 70 1430 CST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 49/28N 98/52W Swan Lake, Man.

LOCALE: Rolling terrain, clearing in trees, 1500 by 200, 1475 asl

WEATHER: Vis. 15, temp. 70, wind NW 6-12

PILOT: Glider

TOTAL HOURS: 150 ALL 34 ON TYPE

LAST 90 DAYS: 9 ALL 6 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During forced landing, initial approach made into field downhill. In attempt to turn for uphill landing wing tip struck a tree.

**P0047****Blanik L13 Glider****C-FCDC**

DATE: 28 June 70 1700 PST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 49/22N 121/29W, Hope, B.C.

LOCALE: Grass runway, 4600 by 500, 128 asl.

WEATHER: Cloud 7880 broken, vis. 15+, temp. 60, wind E 15

PILOT: Glider

TOTAL HOURS: 100 ALL 30 ON TYPE

LAST 90 DAYS: 70 ALL 20 ON TYPE

CASUALTIES: Crew: 1 uninj; pass: 1 minor

OCCURRENCE: In the landing pattern at low altitude the pilot experienced a momentary control jam causing him to overcontrol. The glider stalled and struck the ground in a nosedown banked attitude.



**W0023****Schempp Cirrus Glider****C-FQJH**

DATE: 25 April 70 1700 MST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 51/02N 114/43W, 10 miles SE of Morley, Alta.

LOCALE: Gravel runway 3200 by 60, 4200 asl.

WEATHER: Cloud 12000 broken, vis. 15+, temp. 60, wind SE 5-10

PILOT: Glider

TOTAL HOURS: 426 ALL 64 ON TYPE

LAST 90 DAYS: 16 ALL 5 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During cross-country flight pilot was forced to land at nearby airstrip. Pilot undershot, striking fence across runway threshold.

**P40071****Schweizer SGU1-19****CF-KNM**

DATE: 7 August 74 0903 PST

OPERATION: Private-training

DAMAGE: Substantial

PLACE: Cassidy Airport, B.C. 49/03N 123/52W

LOCALE: Paved runway 5000 by 200, 99 asl.

WEATHER: Sky clear, vis. 15, temp. 78, wind SSE 5

PILOT: Student

TOTAL HOURS: 7 ALL 1 ON TYPE

LAST 90 DAYS: 7 ALL 1 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: On the downwind leg of the circuit the pilot noted he had a headwind however a normal pattern was flown which resulted in excessive altitude being lost on base and final legs. The pilot was unable to clear trees on the approach and attempted to fly through a gap struck a tree, stalled and the glider fell 30 feet to the ground.

**P40079****Schempp Hirth Glider****CF-AMK**

DATE: 24 Aug. 74 1520 PST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 49/22N 121/29W Hope, B.C.

LOCALE: Gravel strip 4600 by 200, 128 asl.

WEATHER: Cloud 3500 scattered, vis. 12, temp. 70, wind WSW 16

PILOT: Glider

TOTAL HOURS: 75 ALL 17 ON TYPE

LAST 90 DAYS: 18 ALL 13 ON TYPE

CASUALTIES: Crew: 1 killed

OCCURRENCE: The glider was being launched by winch, and on leaving the ground was seen to climb steeply to approximately 150 feet. The aircraft yawed left then right, stalled, and struck the ground inverted in a 45° nose down attitude.

**Q40054****Schreder HP11****CF-RX**

DATE: 15 June 74 1440 EST

OPERATION: Private-recreation

DAMAGE: Substantial

PLACE: 45/37N 74/39W Hawkesbury, Ontario

LOCALE: Soil strip 1775 by 485, 167 asl.

WEATHER: Cloud 5000 broken, vis. 10, temp. 70, wind E 20

PILOT: Glider

TOTAL HOURS: 201 ALL 90 ON TYPE

LAST 90 DAYS: 35 ALL 35 ON TYPE

CASUALTIES: Crew: 1 uninj.

OCCURRENCE: During the take-off run, in strong crosswind conditions, the right wing dropped and began to drag in the grass displacing the glider to the right of the intended center line. The pilot lifted the sailplane off the ground by use of 25° flap whereupon the tow rope broke due to side loads. The glider contacted the ground in a nose down right wing low attitude.

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